S/M No. : FRS20210000

DAEWOO

Service Manual

Side By Side Refrigerator

Model: FRS-2021

FRS-2041

✔ **Caution**

: In this Manual, some parts can be changed for improving, their performance without notice in the parts list. So, if you need the latest parts information,please refer to PPL(Parts Price List) in Service Information Center (http://svc.dwe.co.kr).

DAEWOO ELECTRONICS CORP.

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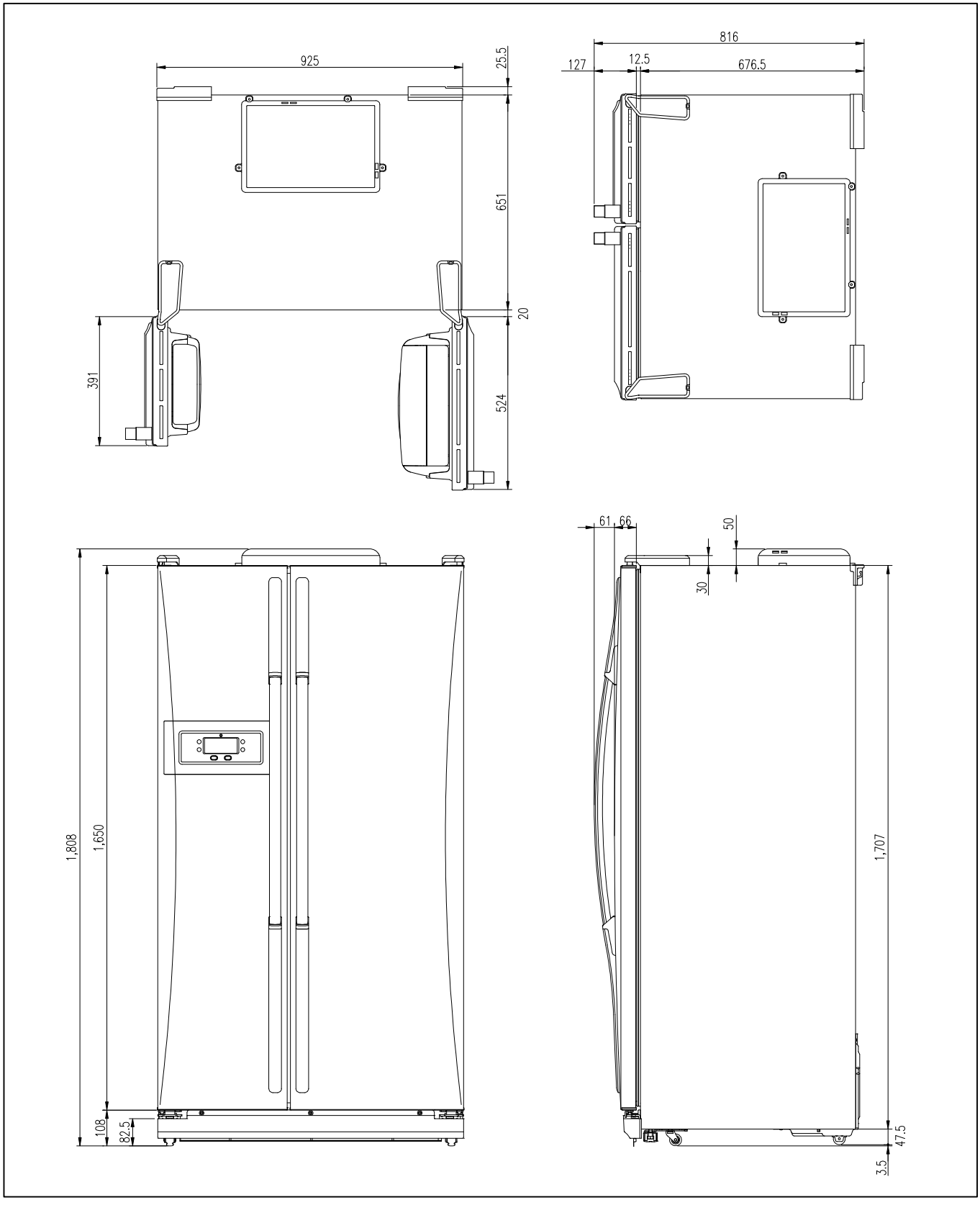
◈ *SAFETY AND PRECAUTIONS* ◈

1) For starters, be sure to check any chances of the leakage of electricity
2) You could handle a part in the vicinity of electricity after unplugging
3) You should put on rubber glovers to prevent an electric shock on operation test
4) Make sure the rated current, voltage, capacity before using an instrument
5) Keep your wet hands away from the metal goods in the freezer compartment not to be frostbitten
6) Be careful not to let water to permeate the electric part in the machine room
7) with the door open during your working, you might be damaged by that door
8) You should give a tilt to the refrigerator for your safe after removing the breakable goods inside the refrigerator
9) You'd better use cotton gloves if you fix it up around the evaporator

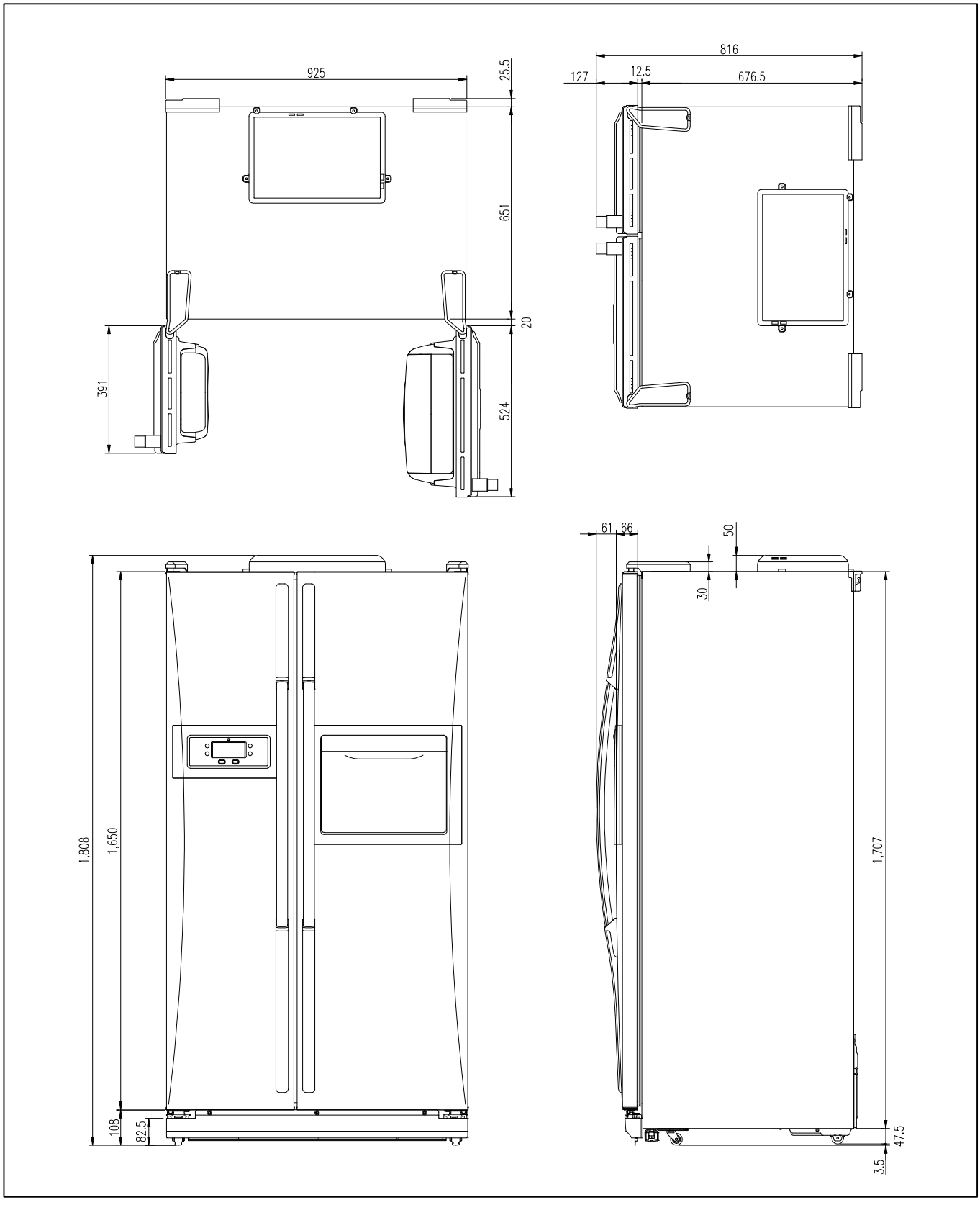
1. EXTERNAL VIEWS

1-1. EXTERNAL SIZE

■ FRS-2021

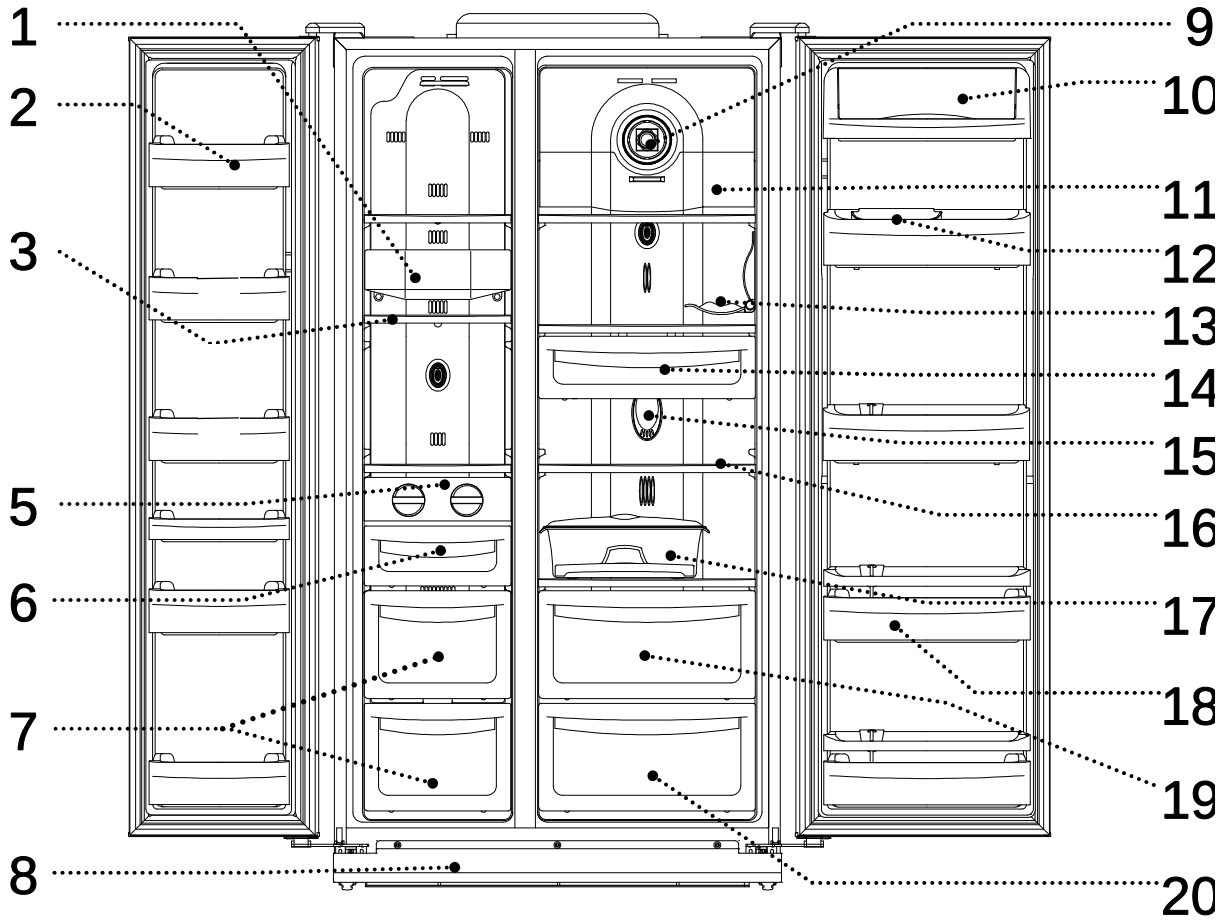


■ FRS-2041


925
25.5
651
20
524
391
816
127
12.5
676.5
61.66
50
30
1,808
1,650
108
82.5
1,707
47.5
3.5

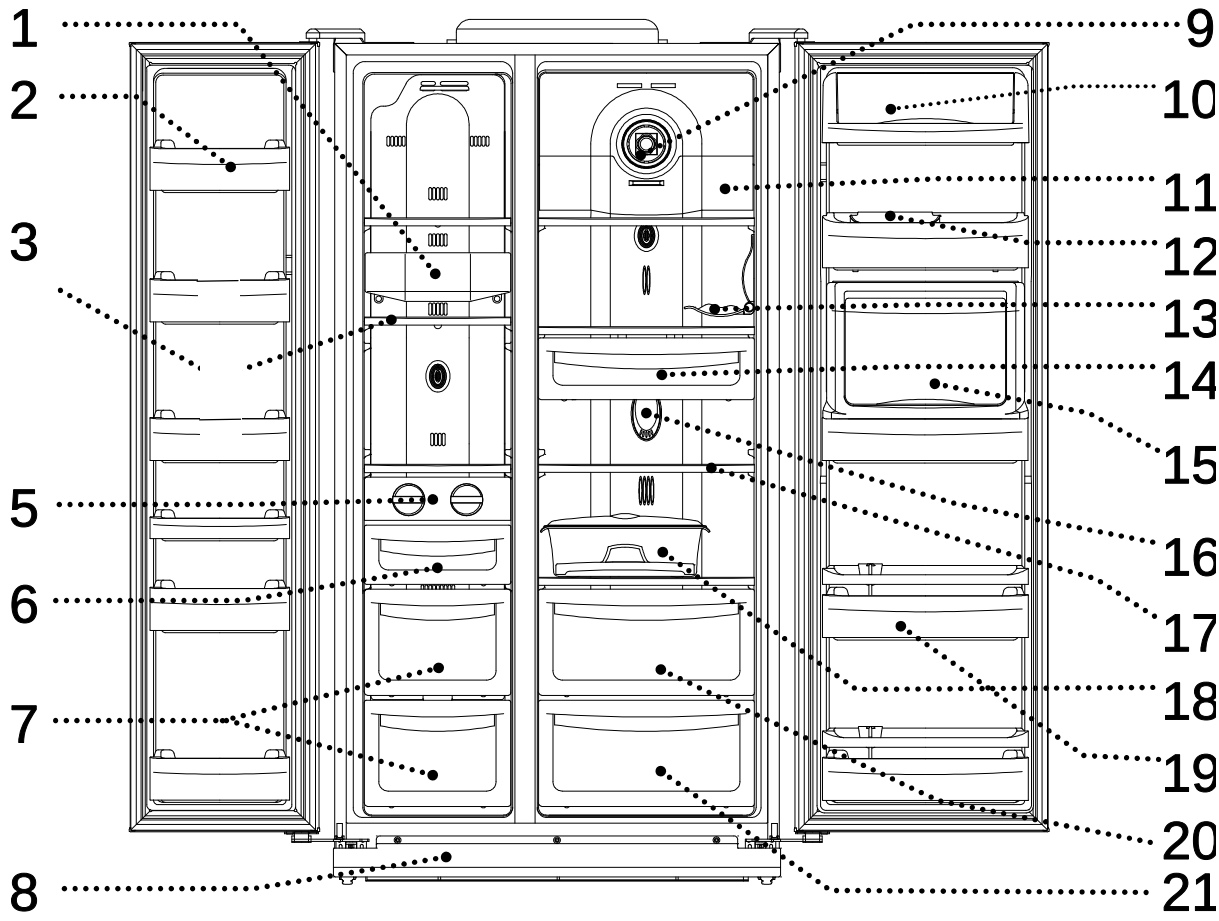
1-2. NAME OF PARTS

■ FRS-2021



Freezer Compartment	Refrigerator Compartment
1. Freezer Light	9. Deodorizer
2. Freezer Pockets	10. Dairy Pocket
3. Freezer Shelves	11. Refrigerator Top Light
5. Ice Cubes Maker	12. Refrigerator Small Pocket
6. Ice Cubes Case	13. Foldaway Wine Support
7. Freezer Case	14. Chilled Case
8. Front Cover	15. Refrigerator Bottom Light
	16. Refrigerator Shelves
	17. Egg Case
	18. Refrigerator Pockets
	19. Vegetables Case
	20. Fruits Case

■ FRS-2041



Freezer Compartment
1. Freezer Light
2. Freezer Pockets
3. Freezer Shelves
5. Ice Cubes Maker
6. Ice Cubes Case
7. Freezer Cases
8. Front Cover

Refrigerator Compartment
9. Deodorizer
10. Diary Pocket
11. Refrigerator Top Light
12. Refrigerator Small Pocket
13. Foldaway Wine Support
14. Chilled Case
15. Refreshment (Home-Bar) Pocket
16. Refrigerator Bottom Light
17. Refrigerator Shelves
18. Egg Case
19. Refrigerator Pockets
20. Vegetables Case
21. Fruits Case

2. SPECIFICATIONS

2-1. OUTLINE

DIVISION		CONTENTS	
MODEL NAME		FRS-2021	FRS-2041
USABLE CAPACITY (L)	FREEZER	215	215
	REFRIGERATOR	370	370
	TOTAL	585	585
EXTERNAL DIMENSION(mm)	WIDTH	925	925
	DEPTH	816	816
	HEIGHT	1808	1808
REFRIGENT	R134a	150/190	150/190
COOLING & CONTROL SYSTEM	COOLING SYSTEM	Fan Cooling System	
	DEFROST SYSTEM	Fin Evaporator Forced	
	DEFORST CONTROL	Automatic Start & Stop	
NET WEIGHT (kg)		115	115

2-2 ELECTRIC PARTS

1) COMPRESSOR

REFRIGERANT	R134a						
VOLTAGE (V/HZ)	100 /50,60	110 / 60	115,120/60	127/60	220 / 60	220 ~240/50	230 /50 (EUROP)
COMP MODEL	X	HBL27YG-3	X	HCL27YG-2	HPL27YG-4A	HPL30YG-5	DK190Q-L2U
PART CODE	X	3952127R30	X	3957127R20	3956127R40	395S130R50	3956190D50
STARTING TYPE	X	CSR	X	CSIR	RSCR	RSCR	RSCR

2) RELAY

REFRIGERANT		R134a						
VOLTAGE (V/HZ)		100 /50,60	110 / 60	115,120/60	127/60	220 / 60	220~240 / 50	230 / 50
ASSY	TYPE NAME	X	783SHB	X	801SFB	419RHB	308NHB	265RHB
	PART CODE	X	3018119370	X	3018118180	3018118131	3018119980	3018125210
PTC	RESISTANCE	X	6.8Ω	X	6.8Ω	33Ω	33Ω	33Ω
OVER LOAD	PART CODE	X	783SHB	X	801SFB	419RHB	308NHB	265RHB

3) STARTING CAPACITOR

REFRIGERANT	R134a						
VOLTAGE (V/HZ)	100 /50,60	110 / 60	115,120/60	127/60	220 / 60	220~240 / 50	230 / 50
PART CODE	X	3016400100	X	3016400100	X	X	X
RATED VOLTAGE	X	200V	X	200V	X	X	X
RATED CAPACITANCE	X	100㎌	X	100㎌	X	X	X

4) RUNNING CAPACITOR

REFRIGERANT	R134a						
VOLTAGE (V/HZ)	100 /50,60	110 / 60	115,120/60	127/60	220 / 60	220~240 / 50	230 / 50
PART CODE	X	400EL15130	X	X	3016401170	3016401920	3016401170
RATED VOLTAGE	X	230V	X	X	350V	400V	350V
RATED CAPACITANCE	X	10㎌	X	X	5㎌	5㎌	5㎌

5) F-FAN MOTOR

REFRIGERANT	R134a						
VOLTAGE (V/HZ)	100 /50,60	110 / 60	115,120/60	127/60	220/60	220~240 / 50	230 / 50
TYPE NAME	BL-2213DWFA-1						
PART CODE	3015911300						
REVOLUTION	DC 12V 2200RPM						

6) R-FAN MOTOR

REFRIGERANT	R134a						
VOLTAGE (V/HZ)	100 /50,60	110 / 60	115,120/60	127/60	220/60	220~240 / 50	230 / 50
TYPE NAME	BL-2213DWRA-1						
PART CODE	3015911400						
REVOLUTION	DC 12V 2200RPM						

7) C- FAN MOTOR

REFRIGERANT	R134a						
VOLTAGE (V/HZ)	100 /50,60	110 / 60	115,120/60	127/60	220/60	220~240 / 50	230 / 50
TYPE NAME	BL-2213DWCA-2						
PART CODE	3015911500						
REVOLUTION	DC 12V 2200RPM						

8) DEFROST HEATER

REFRIGERANT	R134a						
VOLTAGE (V/HZ)	100 /50,60	110 / 60	115,120/60	127/60	220/60	220~240 / 50	230 / 50
SPEC (W)	X	110V 140W	←	←	220V 140W	←	←
PART CODE	X	3012811210	←	←	3012811200	←	←

9) DRAIN HEATER

REFRIGERANT	R134a						
VOLTAGE (V/HZ)	100 /50,60	110 / 60	115,120/60	127/60	220/60	220~240 / 50	230 / 50
SPEC (W)	X	110V 10W	←	←	220V 10W	←	←
PART CODE	X	3012811110	←	←	3012811100	←	←

10) LAMP ASSEMBLY

REFRIGERANT	R134a						
VOLTAGE (V/HZ)	100 /50,60	110 / 60	115,120/60	127/60	220/60	220~240 / 50	230 / 50
SPEC (W)	X	120V 15W	←	←	240V 15W	←	←
PART CODE	X	3013600070	←	←	3013600060	←	←
SPEC (W)	X	120V 25W	←	←	230~240V 25W	←	←
PART CODE	X	3013602020	←	←	3013602010	←	←

11) MAIN PCB ASSEMBLY

REFRIGERANT	R134a						
VOLTAGE (V/HZ)	100 /50,60	110 / 60	115,120/60	127/60	220/60	220~240 / 50	230 / 50
TYPE NAME	X	Y202-SBS	←	←	←	←	←
PART CODE	X	30143B4011	←	←	←	←	30143B4021

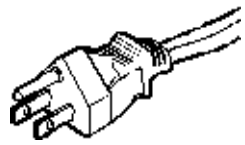
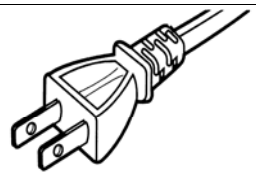
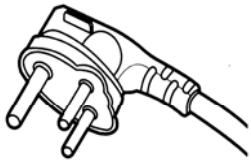
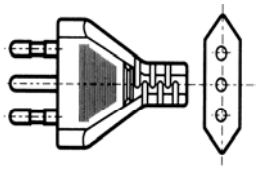
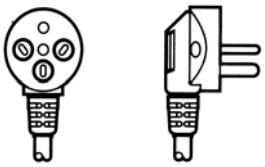
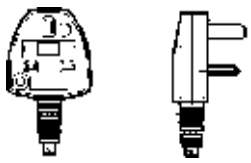
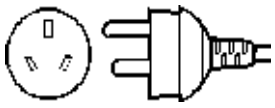
12) FUSE (PCB)

REFRIGERANT	R134a						
VOLTAGE (V/HZ)	100 /50,60	110 / 60	115,120/60	127/60	220/60	220~240 / 50	230 / 50
RATED CURRENT	X	250V/3.15A	←	←	←	←	←
PART CODE	X	5F3GB3282R	←	←	←	←	←

13) THERMOSTAT FUSE

REFRIGERANT	R134a						
VOLTAGE (V/HZ)	100 /50,60	110 / 60	115,120/60	127/60	220/60	220~240 / 50	230 / 50
OPERATING TEMPERATURE	x	77℃	←	←	←	←	←
PART CODE	x	30127201400	←	←	←	←	←

2-3. POWER CORD

NO	SHAPE OF POWER CORD	PART CODE	DESCRIPTION	REMARK
1		3011315000	CP-2PIN	For european country
2		401RA17200	CP-2PIN	For other country
3		4006D17101	KP-30	For America & El Salvador
4		401PD17101	KP-211	For Japan & Taiwan
5		3011300801	BP-3PIN	
6		3011303010	# 267	For Chile
7		3011315310		For Israel
8		3011303050	BS-1363A	For U.K, Middle Asia Singapore & Malaysia
9		3011301200	KP-551/550	For China & Australia

※ Upper power cord's part code is only lead wire, without any kinds of terminal or houisng

2-4. DOOR COLOR

1) ASSEMBLY URETHAN FREEZER DOOR

* FRS-2021, FRS-2401

Refrigerant	Cyclo Pentane				
COLORTYPE	Bright White PCM	White Emboss	Beige Emboss	Inox Looking Ellio 1	Inox Looking Ellio 2
COLOR CODE	RWB3C	GWG1B	FBG3B	DSG1E	ISG3E
PARTCODE	3000018730	3000018720	3000018710	3000018740	3000018700

2) ASSEMBLY URETHAN REFRIGERATOR DOOR

① FRS-2021

Refrigerant	Cyclo Pentane				
COLORTYPE	Bright White PCM	White Emboss	Beige Emboss	Inox Looking Ellio 1	Inox Looking Ellio 2
COLOR CODE	RWB3C	GWG1B	FBG3B	DSG1E	ISG3E
PARTCODE	3000018830	3000018820	3000018810	3000018840	3000018800

② FRS-2041 (220 ~ 240V)

Refrigerant	Cyclo Pentane				
COLORTYPE	Bright White PCM	White Emboss	Beige Emboss	Inox Looking Ellio 1	Inox Looking Ellio 2
COLOR CODE	RWB3C	GWG1B	FBG3B	DSG1E	ISG3E
PARTCODE	3000025330	3000025320	3000025310	3000025340	3000025300

③ FRS-2041 (100 ~ 127V)

Refrigerant	Cyclo Pentane				
COLORTYPE	Bright White PCM	White Emboss	Beige Emboss	Inox Looking Ellio 1	Inox Looking Ellio 2
COLOR CODE	RWB3C	GWG1B	FBG3B	DSG1E	ISG3E
PARTCODE	3000025380	3000025370	3000025360	3000025390	3000025350

3. OPERATION AND FUCTIONS

■ Display

INPUT	Control Object
Front PCB buttons FRZ SET. button / REF SET. button SUPER FRZ. button / SUPER REF. button LOCK button / SLEEP button	LCD

CONTENTS	REMARKS
1. Normal Operation 1) Temperature control of Freezer / Refrigerator (Initial mode : Freezer & Refrigerator **->** Middle) 2) Lock mode : unlock(OFF) / Sleep mode : OFF 3) SPEED icon : inactive 4) FUZZY & DEODORIZER letters and icons : always ON	

5) Other display modes

CUSTOM LCD	Normal Operation	Silent Mode			Sleep Mode
	Normal Mode	Load Mode		Silence Mode	
Freezer / Refrigerator BAR	DIAL	DIAL	DIAL	DIAL	DIAL
Temp. SEG.	DIAL	DIAL	DIAL	DIAL	DIAL
1) Letters of [FRZ., REF., LOW, HIGH, SET TEMP, C, FUZZY, DEODO., SILENT, SLEEP] 2) Icons of [FUZZY, DEODO., SLEEP] 3) Temp. bars and lines	ON	ON	ON	ON	ON
SILENT icon	OFF	OFF	ON	ON	OFF
SPEED letters	OFF	ON	ON	OFF	OFF
SPEED bars	OFF	ON (progressive)	ON (progressive)	OFF	OFF
LOCK ON/OFF, SLEEP ON/OFF	DIAL	DIAL	DIAL	DIAL	DIAL

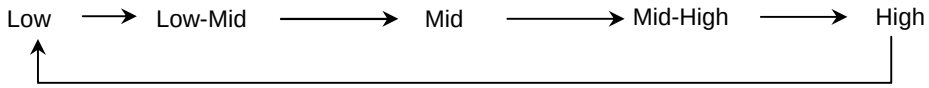
CONTENTS	REMARK
2. "FRZ SET." button 1) Temperature control of Freezer compartment 2) 5 steps of sequential temperature mode Initial mode by power input : “MID” (Temperature and bars are shown.) * Letters are not indicated at Soft-Mid and Mid-Strong modes. (Just temperatures and bars are shown.) Temperature progress : Low -> (Low-Mid) -> Mid -> (Mid-High) -> HIgh Temp. indication : -15C -17C -19C -21C -25C Number of bars : 5EA 3EA 5EA 3EA 5EA 3. "SUPER FRZ." button When this mode is chosen, “QUICK” icon and letters of freezer flicker 3 times and ON. (The set temperature and bars are still the previous value.) 4. "REF SET.” button 1) Temperature control of Refrigerator compartment 2) 5 steps of sequential temperature mode Initial mode by power input : “MID” (Temperature and bars are shown.) * Letters are not indicated at Soft-Mid and Mid-Strong modes. (Just temperatures and bars are shown.) Temperature progress : Low -> (Low-Mid) -> Mid -> (Mid-High) -> HIgh Temp. indication : 4C 3C 2C 1C 0C Number of bars : 5EA 3EA 5EA 3EA 5EA 5. "SUPER REF." button When this mode is chosen, “QUICK” icon and letters of refrigerator flicker 3 times and ON. (The set temperature and bars are still the previous value.) 6. "SLEEP" button 1) Start by pushing the button ("ON" lights.) 2) Stop by pushing button again ("OFF" lights.) 3) Automaticcally terminated after maximum 12 hours ("OFF" lights.) 7. "LOCK" button 1) Start by pushing the button ("LOCK" letters and icon light.) * No other buttons and modes, buzzer sound are controllable. 2) Stop by pushing button again for a second ("OFF” and icon light.)	

■ Temperature Control of Freezer Compartment (FC)

INPUT	Control Object
1. FRZ SET. button / SUPER FRZ. button 2. F-sensor	1. COMP 2. F-FAN

CONTENTS	REMARKS

1. Temperature modes change by pushing the button.

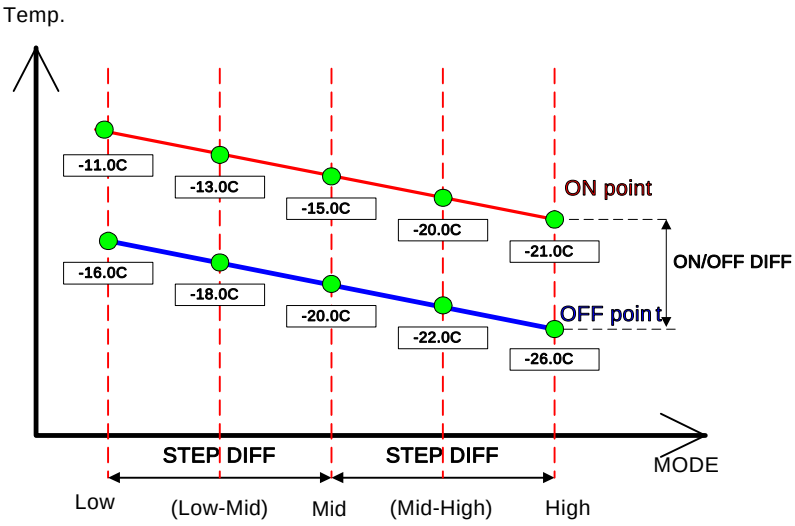


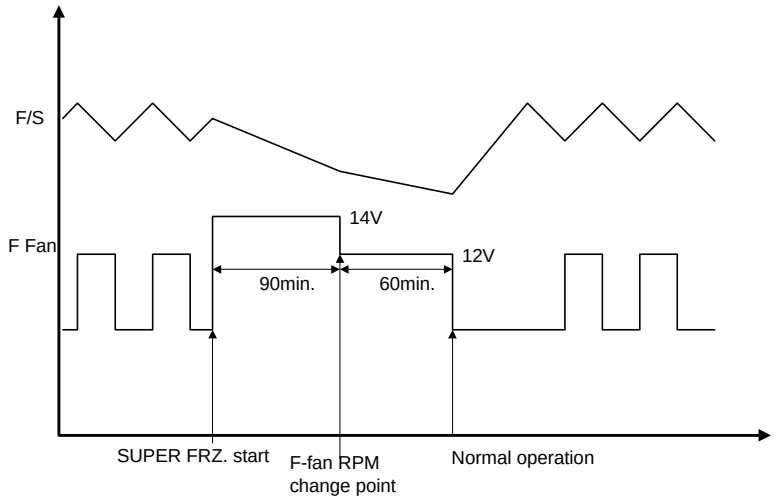
2. Comp. and F-fan are controlled by ON / OFF point of each mode.

3. FC [ON / OFF] DIFF : 5 C
   (Freezer middle OFFpoint : -20.0 C

4. FC [Low -> (Low-Mid) -> Mid -> (Mid-High)] DIFF : 2 degrees respectively
   (* [(Mid-HIgh) -> High] DIFF : 4 degrees)

5. Control point of each mode



CONTENTS	REMARKS
6. SUPER FRZ. (Quick Freezing) 1) Comp. and F-fan are ON (about 150 minutes) regardless of F-sensor. 2) F-fan runs at 14V for the first 90 min., then at 12V for the rest time.  	* ON/OFF DIFF. : fixed by MICOM * STEP DIFF. : fixed by MICOM * Comp. and C-fan : linked

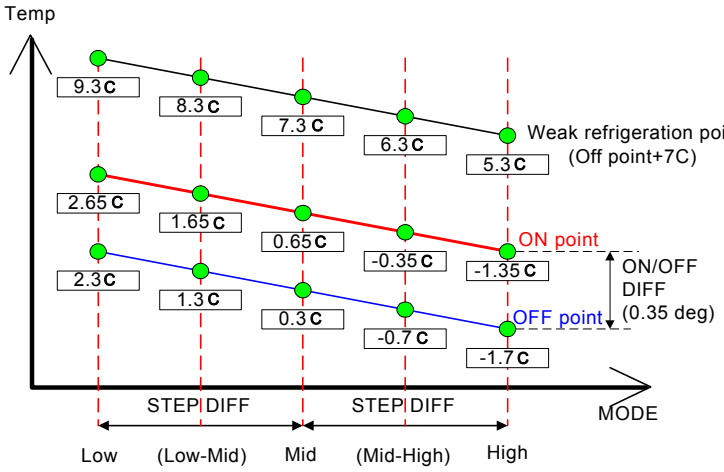
■ Temperature Control of Refrigerator Compartment (RC)

INPUT	Control Object
1. REF SET. button 2. R-sensor	1. COMP 2. R-FAN

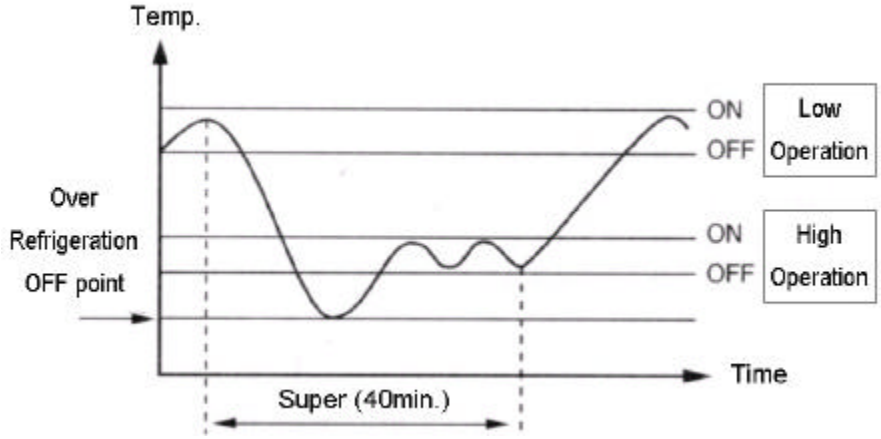
CONTENTS	REMARKS
1. Temperature modes change by pushing the button. Low → Low-Mid → Mid → Mid-High → High 2. R-fan are controlled by ON / OFF point of each mode. 3. RC [ON / OFF] DIFF : 0.35C (RC middle OFF point : 0.3C) 4. RC [Low -> (Low-Mid) -> Mid -> (Mid-High)] DIFF : 1 degree respectively 5. Prevention of weak/poor-refrigeration 1) When weak refrigeration is sensed, comp. is ON regardless of F-sensor. 2) When R-sensor reaches R-fan OFF point, comp. is controlled by F-sensor and R-fan turns OFF. 3) Sensing point of weak refrigeration : R-sensor OFF point of each mode + 7C 4) Termination point : Same as R-sensor OFF point of each mode	* ON/OFF Diff. : fixed by MICOM * STEP DIFF. : fixed by MICOM

CONTENTS	REMARKS

6. Control point of each mode



7. Super refrigeration proceeds for 40 minutes.
   * Example of temperature change
   (Refrigerator ; Low (normal) -> Super refrigeration)



1) R-fan and comp. are ON until R-sensor reaches to over-refrigeration OFF point (-7C).
2) After reaching to the point, it goes on with “HIGH” mode until the end of Super refrigeration.
   It returns to normal after Quick refrigeration of 40 minutes.

■ SLEEP Mode

INPUT	Control Object
1. SLEEP button	1. COMP 2. R-FAN 3. F-FAN 4. CUSTOM-LCD

CONTENTS	REMARKS
1. This mode starts with a push of “SLEEP” button. 2. Conditions to start Sleep mode 1) F-sensor ≦ -13C 2) Unless it is a restart within 40 minutes after the end of previous Sleep mode 3) F-sensor error 4) Door switch error 5) Defrosting (Heater defrosting, pause, Fan delay) 6) If the above conditions of **1)** ~ 5) are all satisfied, the sleep mode starts. 3. Control of electrical parts 1) Mode 1 Once Sleep mode starts, all the electrical parts (COMP, F-FAN, R-FAN) turn OFF. (“ON” letters of SLEEP on LCD is display.) 2) Mode 2 It operates with Silent mode and “ON” letters of SLEEP on LCD is displayed on.) 4. Termination of Sleep mode 1) MODE 1 a . F-sensor ≧ -9C **b.** In case of F-sensor error **c.** When other button is pushed during this mode **d.** Total F/R door open time exceeds 30 seconds during the mode **e.** If Sleep mode is terminated by **a, b** and **f**, F/R-fan delay for 5 minutes and restart of this mode is prevented for 40minutes. **f.** It it exceeds time limit of 130 minute, Mode1 is terminated and Mode2 starts. 2) MODE 2 Sleep mode is terminated 12 hours after the first start. (Speed mode and defrosting operate in normal way.) 5. After Sleep mode stops all the electrical parts return to normal operation and Sleep icon changes from “ON” to “OFF”. 6. If Sleep mode starts during PRECOOL, it goes on again after the Sleep mode is terminated. 7. If Sleep mode starts during Super FRZ., Super REF., it returns to previous set modeafter the Sleep mode is terminated.	

■ SILENT (Silence Mode)

INPUT	Control Object
1. CDS SENSOR	5. COMP 6. R-FAN 7. F-FAN 8. CUSTOM-LCD

CONTENTS | **REMARKS**

1. Purpose of Silence mode
   To reduce refrigerator noise at night by decresing fan RPM to a minimum degree

2. Condition to start
   1) The optical or light sensor in top middle of control panel senses surround light and Silence mode starts if the amount of light sensed is below the standard value for more than 1 minute.
   (The mode does not start for initial 240 minutes to prevent down of cooling performance.)
   a. Standard value to decide 'night' : below 5~7 Lux (optical sensor surface)
   b. Standard value to decide 'daytime' : above 4~16 Lux (optical sensor surface)

3. Control Method

Control Mode		F-FAN	R-FAN	C-FAN
Silence	Normal	10V	10V	10V
	Load Control	12V	12V	10V

4. Termination Condition
   The mode stops if lux value is above the standard for more than 1 minute.

■ Control of Each Mode

INPUT	Control Object
1. CDS SENSOR 2. R SENSOR 3. F SENSOR	1. F-FAN (14V, 12V, 10V)

CONTENTS | **REMARKS**

***** Control of Silence mode : operation mode when the optical sensor feels that it is night
* Normal control : daytime operation mode
(Refrigerator noise is relatively low at daytime.)
* Load control : operation mode when inside temperature goes up due to an increase of load (foods) or frequent door openings

CONTENTS	REMARKS

1. Fan voltage of each control mode

Control Mode		F-FAN	R-FAN	C-FAN
Normal		12V	12V	10V
Load Control	Normal	14V	14V	
	Silence	12V	12V	
Silence	Normal	10V	10V	
Sleep Mode2	Normal	10V	10V	
	Load control	12V	12V	

2. Control against (under) load (Load Control)

1) Purpose : To restore F/R-temperature which has risen by load (much foods in or frequent door openings) as soon as possible

2) Display : "SPEED" lights until the mode and speed icons flicker.

3) Conditions to start (from both Normal and Silence)

a. F or R door open time exceeds 30 seconds at a time -> Freezer and Refregerator load control starts respectively.
b. Over [F-sensor On Point + 5 degree] -> F load control
c. Over [R-sensor On Point + 5 degree] -> R load control

4) Conditions to avoid load control

a. Initial operation (rught after power input) of refrigerator
b. Just after Pre-cool, Heater defrosting, Pause, Defrosting cycle

5) Control Method

5-1) Control mode by F/R-door open time (over 30 seconds)
-> F/R-fan works by 14V respectively.
5-2) Control mode by [F-sensor On Point + 5 degree]
-> F-fan works by 14V.
5-3) Control mode by [R-sensor On Point + 5 degree]
-> R-fan works by 14V.
* C-fan works by 10V as normal.

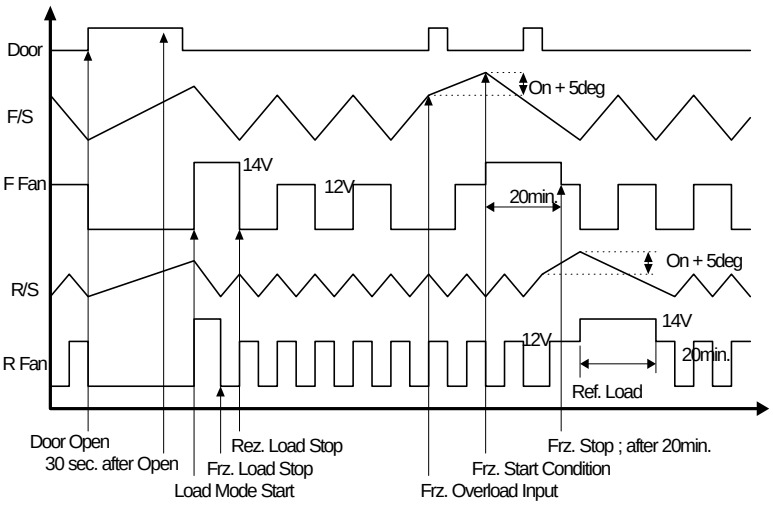
6) Conditions to stop

a. The mode works for 20 minutes.
(If another condition happens at the end of the mode, it starts again.)
b. When it reaches to [F-sensor Off point], F-fan load control mode stops.
c. When it reaches to [R-sensor Off point], R-fan load control mode stops.

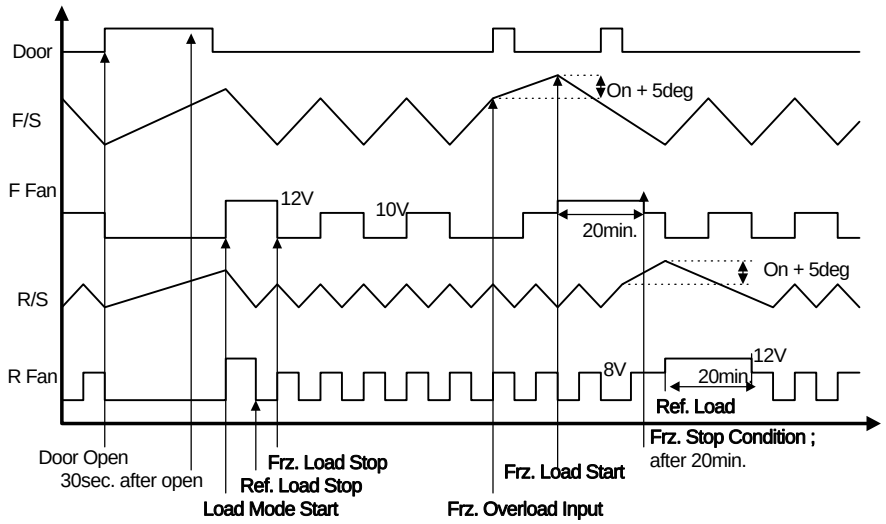
CONTENTS	REMARKS

3. Control Time Chart of Each Mode

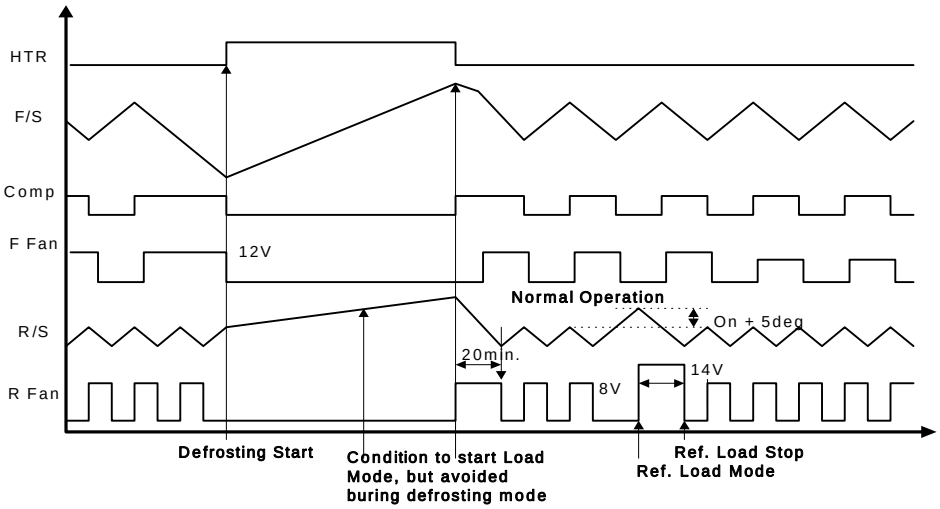
1) Start & stop of load control mode (Normal Control)



2) Start & stop of load control mode (Silence Control)

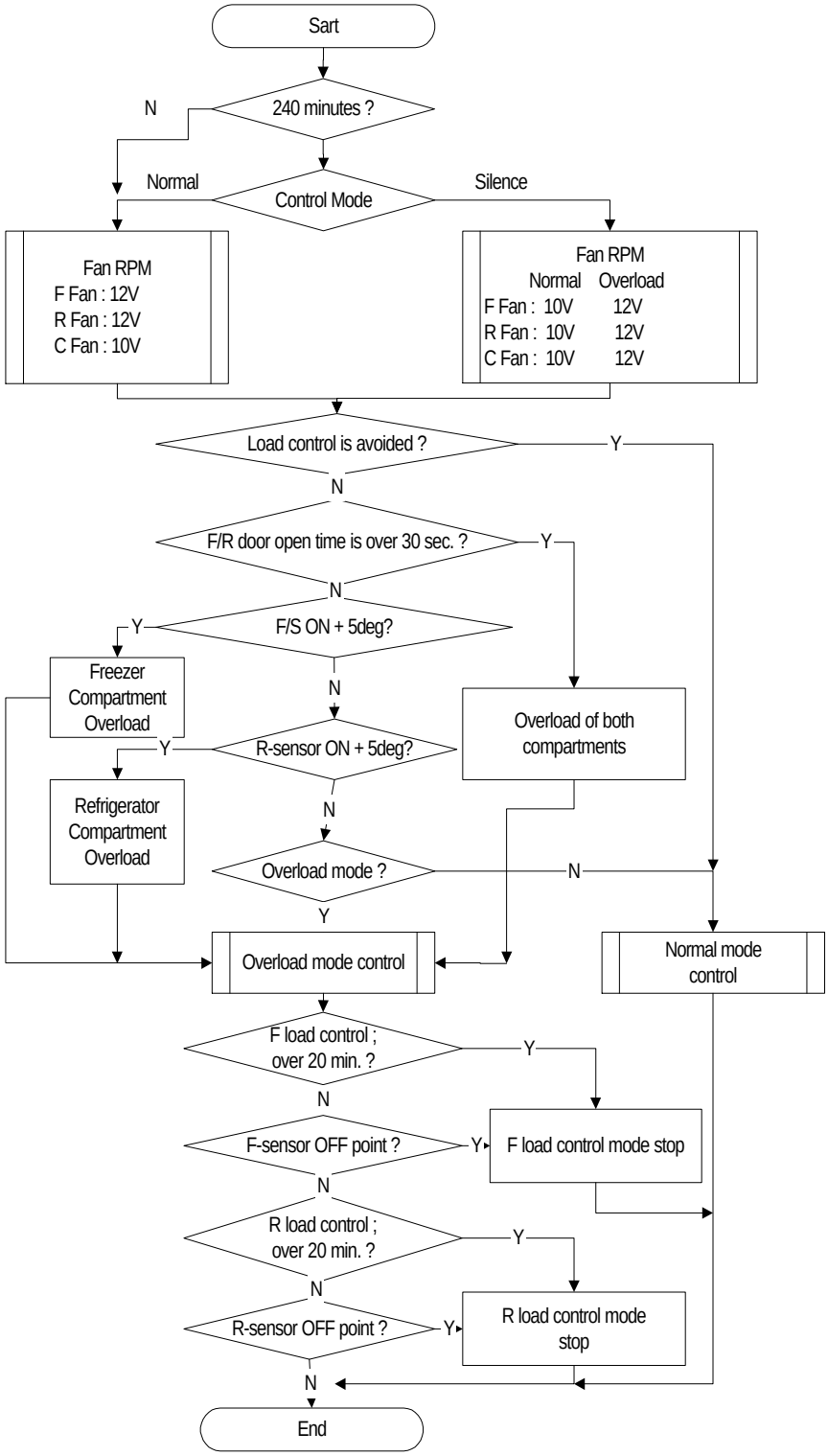


3) Start & stop of load control mode (Normal defrosting control)



CONTENTS	REMARKS

4. Flow Chart of Load Control Mode



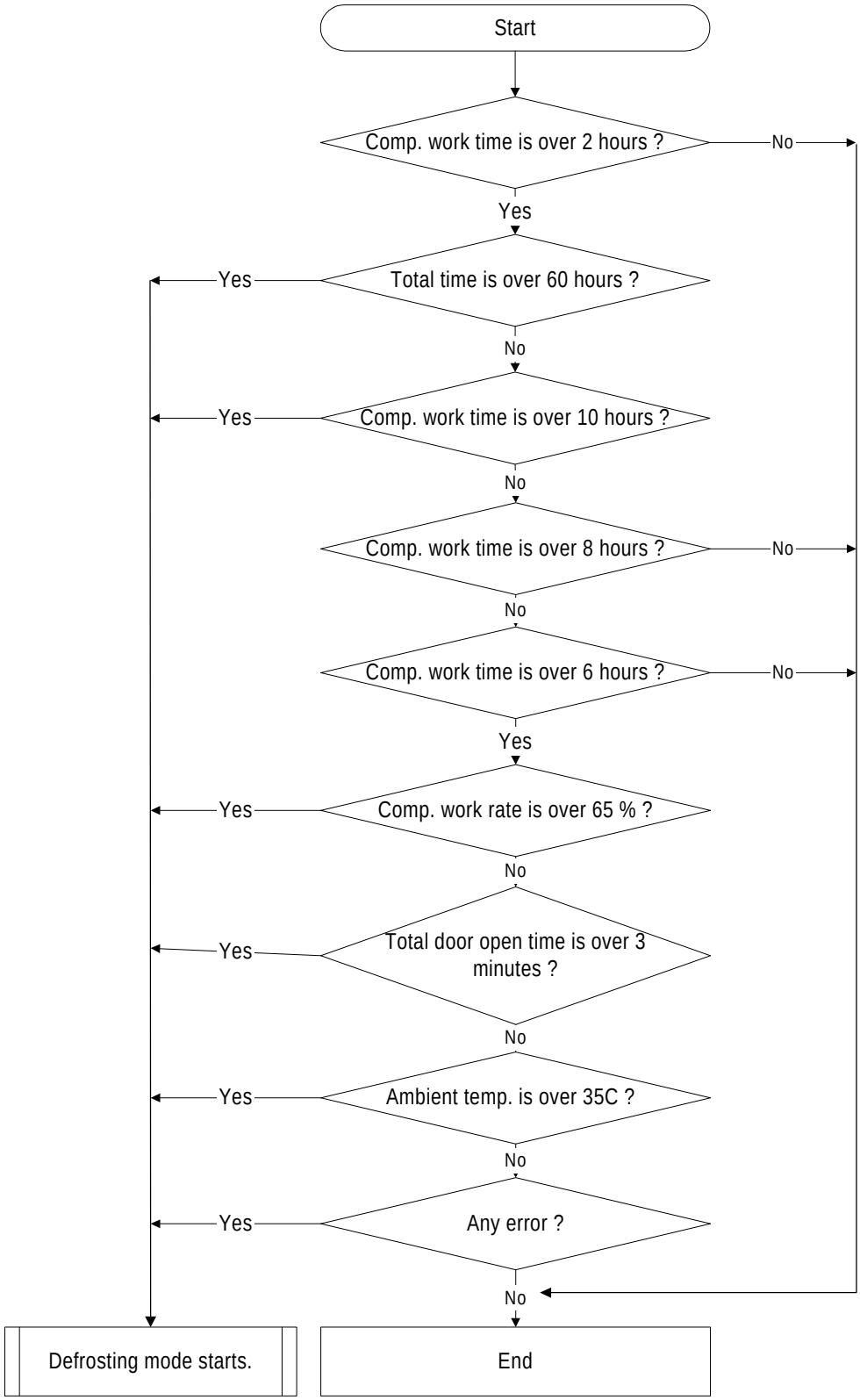
■ Defrosting Cycle

INPUT	Control Object
1. Total comp. work time 2. Comp. work rate 3. RT temperature 4. Total door open time	1. Defrosting Mode

CONTENTS	REMARKS
1. Conditions to start defrosting cycle 1) Total comp. work time : 6, 8, 10 hours 2) Comp. work rate (by the 2 hours) : over 65% 3) Total door open time : 3 minutes (Any door - F or R – open time is over 3 minutes.) 4) Total time of [comp. ON + comp. OFF] : 60 hours 5) Ambient temperature : over 35C 6) Any error mode : R1, F1, D1, F3, RT/S, Door-switch 2. Conditions to start defrosting mode 1) The mode starts in the following conditions ; a. Any error happens when total comp. work time is 6 or 8 or 10 hours. b. Comp. work rate by the 2 hours is over 65%. c. Total door open time is over 3 minutes. (Any door - F or R – open time is over 3 minutes.) d. Ambient temperature is over 35C 2) Defrosting mode starts unconditionally as long as total comp. work time is 10 hours, even if the above conditions (**a~d**) are not satisfied. 3) Defrosting mode starts immediately as long as total time of [comp. ON + comp. OFF] is over 60 hours, even if the above 1) and 2) conditions are not satisfied.	

CONTENTS	REMARKS

3. Flow Chart of Defrosting Start



■ Defrosting Mode

INPUT	Control Object
1. Defrosting Cycle	1. COMP 2. F-FAN 3. R-FAN 4. HEATER

CONTENTS | **REMARKS**

1. Defrosting Mode

Pre-Cool

1) Time ; 50 minutes
2) Comp. / F-fan : ON
R-fan : Control
Heater : OFF
3) If F-sensor **≦ - 27C, PRE-COOL becomes OFF**.

Heater Defrosting

1) If D-sensor **≧ 10C, Heater becomes OFF**.
2) In case of Heater return by time limit of 40 or 80 min (F3-Error)
3) Heater is ON for 30 minutes (time limit) in case of D-sensor error.
4) Time limit
a. 30 seconds : Heater is ON regardless of D-sensor temperature right after defrosting start.
b. 30 minutes : in case of D1-Error
c. 80 minutes : in normal control state

Pause

1) Time : 7 minutes
Comp., F-fan, R-fan, Heater : OFF

Fan Delay

1) Time : 5 minutes
Comp. : ON
F/R-fan, Heater : OFF

* Output control and time limit of each defrosting mode

	PRE-COOL	Heater Defrosting	Pause	Fan Delay
COMP	ON	OFF	OFF	ON
F-FAN	ON	OFF	OFF	OFF
R-FAN	Control	OFF	OFF	OFF
HEATER	OFF	ON	OFF	OFF
Time Limit	50 min.	a. 80 min. b. 30 min. (in case of D1-Error)	7 min.	5 min.

C-fan and comp. are linked.

2. Initial Defrosting
If D-sensor **≦ 3.5C**, defrosting mode starts from Pre-Cool at initial power input or first plugin.

■ Error Display (LCD Display of F-PCB)

INPUT	Control Object
1. Temperature Control Buttons	CUSTOM LCD

CONTENTS

1. How to start
   1) Set "LOCK ON" first.
   2) Push "LOCK" button 3 times while pushing "REF SET." button at the same time.

2. Display
   Error code is displayed on Freezer temperature display part.

3. How to stop
   1) Push "LOCK" button 3 times while pushing "REF SET." button.
   2) It stops automatically 4 minutes after the start.

4. All the error Ccdes are reset if they turn to be normal.

5. Error Code

ERROR CODE	CONTENTS
F1	F-sensor ; disconnection, short(pull-down)
r1	R-sensor ; disconnection, short(pull-down)
rt	RT-sensor ; disconnection, short(pull-down)
d1	D-sensor ; disconnection, short(pull-down)
dr	R-Door Switch ; defective
dF	F-Door Switch ; defective
dH	Homebar (Refreshment Center) Door Switch ; defective
C1	Cycle ; abnormal or defective.
F3	Return after defrosting ; abnormal or defective
d2	Forced defrosting mode for A/S

REMARKS

CONTENTS	REMARKS

6. Control Way of Errors (if any)

1) "F1" ERROR
a. Cause : F-sensor disconnection / short (pull-down)
b. Control : Comp. / F-fan -> ON for 25min., OFF for 25min.
c. if F-sensor is normal, the error is terminated automatically.

2) "r1" ERROR
a. Cause : R-sensor disconnection / short (pull-down)
b. Control : Condition of ambient temperature

RT/S	In ERROR	~ 13C	14 ~ 19C	20 ~ 29C	29C ~
Work rate ON/OFF	8 / 12	7 / 13	8 / 12	8 / 12	9 / 11

c. If R-sensor is normal, the error is terminated automatically.

3) "rt" ERROR
a. Cause : RT-sensor disconnection / short (pull-down)
b. Control : Normal operation, deletion of control condition by RT-sensor
c. If RT-sensor is normal, the error is terminated automatically.

4) "d1" ERROR
a. Cause : D-sensor disconnection / short (pull-down)
b. Control : Time limit (30min.) of defrosting-return
c. If D-sensor is normal, the error is terminated automatically.

5) Door ERROR("dF","dR","dH" on display)
a. Cause : in case it senses that door is open for more than 1
b. Control : Deletion of function related door switch sensing
c. If door switch (open & close) is sensed, the error is terminated automatically.
d. After displaying on LCD the mode is terminated.

6) "C1" ERROR
a. Cause : in case comp. works for over 3 hours when D-sensor temp. is over -5C
b. Control : Normal operation
c. When D-sensor temp. is below -5C in comp. OFF, it is terminated.

7) "F3" ERROR
a. Cause : in case defrosting-return is done by time limit of 80min.
b. Control : Deletion of Pre-cool mode in defrosting mode
c. If defrosting-return is done by D-sensor, it is terminated.

8) "d2" MODE (A/S forced defrosting mode)
a. Set “LOCK ON” first, then push “REF SET.” button 5 times while pushing “FRZ SET.” button simultaneously.
b. Control : A/S forced defrosting control (Pre-cool is deleted.)
c. If D-sensor temp. is over 10C, the mode is terminated automatically.

■ Forced Defrosting

INPUT	Control Object
1. “FRZ SET.” button 2. “REF SET.” button 3. “LOCK” button	Defrosting Mode

CONTENTS	REMARKS
1. How to start -> Set “LOCK ON” first, then push “REF SET.” button 5 times while pushing “FRZ SET.” button simultaneously. 2. How to proceed 1) Delete Pre-cool mode. (Others are same as normal defrosting.) 2) Heater is ON regardless of D-sensor temp. at first 30 seconds. (Check of defrosting current)	

6-11. Initial Defrosting

INPUT	Control Object
D-sensor Initial or first power input (power plugin)	Defrosting Mode

CONTENTS	REMARKS
If D-sensor temp. ≤ 3.5C, defrosting mode starts from Pre-cool at first power input.	Comp. is delayed for 6 min. at the initial defrosting.

6-12. Buzzer or Alarm

INPUT	Control Object
F-PCB buttons Door Switch Initial Power Input	BUZZER

CONTENTS	REMARKS
1. Buzzer sounds if any button of F-PCB is pushed. 2. Buzzer sounds 3 times 3 minutes after initial power input. 3. Buzzer sounds for 1 second in case of A/S forced defrosting, short (pull-down) operation, explanation mode. 4. If door is open, buzzer sounds continually 3 times for 5 seconds. (Door open alarm)	

■ LCD Background Light

INPUT	Control Object
F-PCB buttons Door Switch Initial Power Input	LCD BACK LIGHT

CONTENTS	REMARKS
1. Conditions to turn on LCD Light 1) Power input (plugin) 2) When any button on the panel is pushed, first the back light turns on, then button control is done. 3) When F/R door is open, the light turns on. 2. Conditions to turn off the light 1) The back light turns off 10 seconds after F/R door is closed 2) 1 minute after button control	

■ Explanation After Delivery

INPUT	Control Object
"FRZ SET." button "REF SET." button Power Cord	Electrical components and LCD

CONTENTS	REMARKS
1. Start Push "REF SET." button for 3 seconds within 10 seconds just after power input. 2. Control 1) Electrical components are OFF for 3 hours. 2) Display operates in normal way.	

■ Prevention of Compressor Restart

INPUT	Control Object
None	Comp.

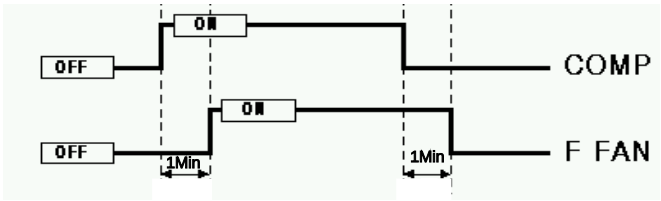
CONTENTS	REMARKS
Comp. does not start again for 6 minutes though F-sensor is ON.	6min. delay

■ Delay Function of Electric Components

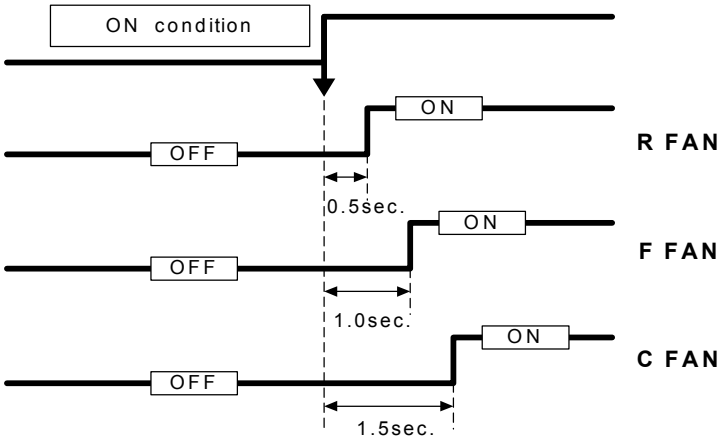
INPUT	Control Object
COMP ON/OFF	COMP F-FAN

CONTENTS	REMARKS

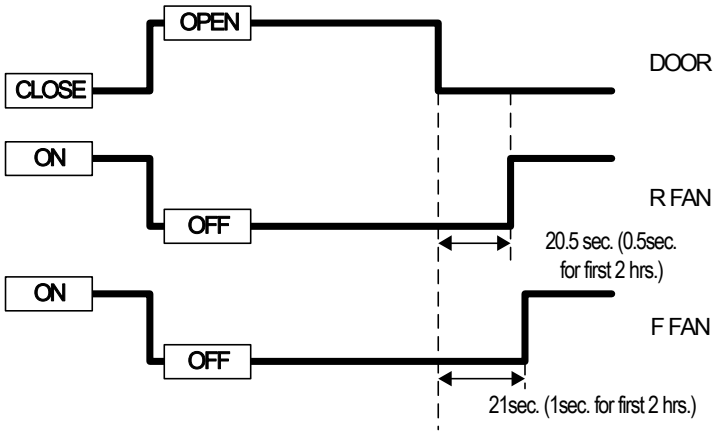
1) F-fan delay by comp. ON/OFF
-> F-fan is ON/OFF 1 minute after comp. is ON/OFF.



2) Fan Delay and Priority



3) F/R-fan delay by door open/close for easy door
-> Inspection : checkup door opening 2 hours after initial start
-> First R is ON, 1 second later F is ON to protect DC fan against over current at initial start.



■ Home Bar (Refreshment Center) Heater (FR-S580CR MODEL)

INPUT	Control Object
None	COMP
CONTENTS	**REMARKS**
It is linked with comp.	

■ Control of Interior Lights

INPUT	Control Object
Refrigerator Door Freezer Door Home-Bar Door (Refreshment Center ; FR-S580CR)	COMP
CONTENTS	**REMARKS**
1) Control of Refrigerator Compartment Lights R lights turn ON/OFF by R-door switch (ON/OFF). * 10 minutes after sensing door open, the lights turn off automatically though door close is not sensed. 2) Control of Freezer Compartment Lights F lights turn ON/OFF by F-door switch (ON/OFF). * 10 minutes after sensing door open, the lights turn off automatically though door close is not sensed. 3) R-lights ON/OFF by Home-Bar door opening R-lights turn ON for 1 minute after sensing HOME-BAR switch open. (If the switch is pushed again within 1 minute, the light turns on another 1 minute.)	

■ Demonstration Function

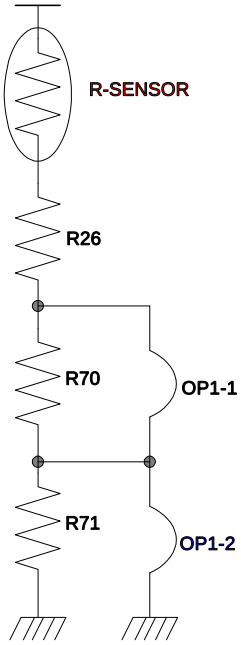
INPUT	Control Object
“LOCK” button “REF SET.” button “SLEEP” button	COMP F-FAN R-FAN
CONTENTS	**REMARKS**
1. Start 1) Set “LOCK ON” first. 2) Push “SLEEP” button 5 times while pushing “REF SET.” button simultaneously. 2. Control 1) All other electrical components are OFF except for F-fan / R-fan. 2) Fan Control DOOR OPEN -> FAN ON / DOOR CLOSE -> FAN OFF 3) Display : Normal mode (3.8sec.) -> SPEED(3sec.) -> Silent mode(3sec.) -> Sleep mode (3sec.) 3. Stop or Termination 1) During Demo mode push “SLEEP” button 5 times while pushing “REF SET.” button simultaneously. 2) Power in again.	

■ Regulation of R-sensor OFF Point

INPUT	Control Object
J18, 22 on Main PCB	Resistance of R-sensor Mid OFF Point

CONTENTS	REMARKS

a. Regulation of R-sensor OFF point (1.5degree DOWN)
b. In case refrigeration of refrigerator is weak or insufficient, take the following action.



a. R26 : R-SENSOR standard resistance in normal mode (31.4K)
b. R70 : In case of weak ref., cut J18 to down the standard resistance by 1.5deg(2K)
c. R71 : In case of weak ref., cut J22 to down the standard resistance by 1.5deg(2K)

R26 = Mid OFF point
R26 + R70 = Mid OFF point - 1.5 deg
R26 + R70 + R71 = Mid OFF point - 3.0 deg

■ Summary of Function

CONTENTS	REMARKS

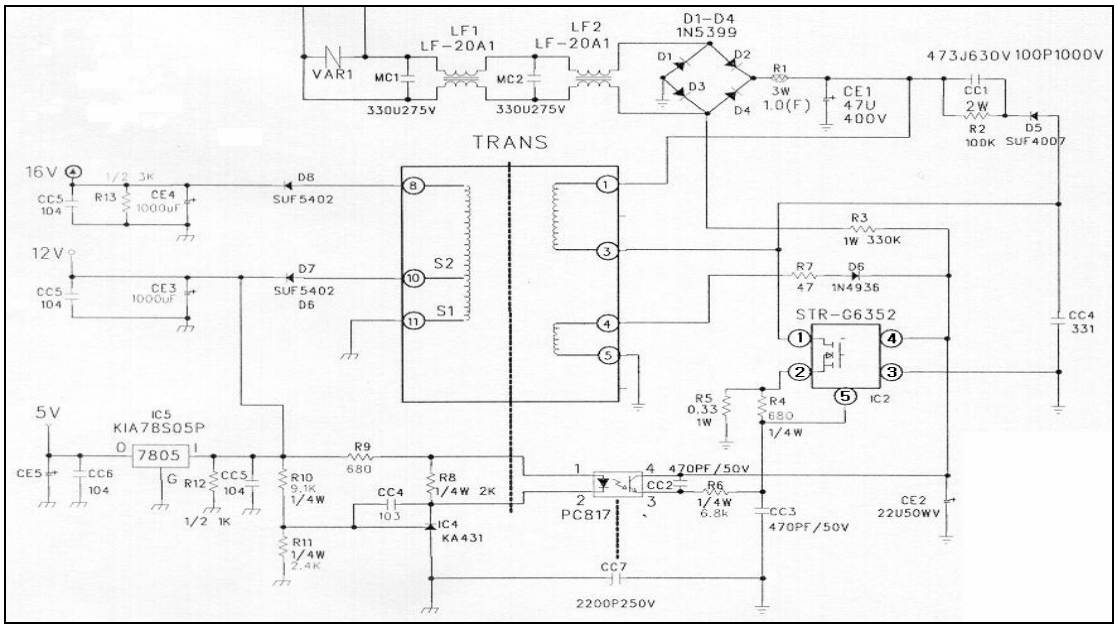
* How to start function modes
* All the modes are started with “LOCK ON” except for “explanation after delivery & installation”.

A/S forced defrosting	“FRZ SET.” + “REF SET.” 5 times
Demonstration	“REF SET.” + “SLEEP” 5 times
Explanation after delivery & installation	“REF SET.” for 3 sec. Right after first power in
ERROR display	“REF SET.” + “LOCK” 3 times

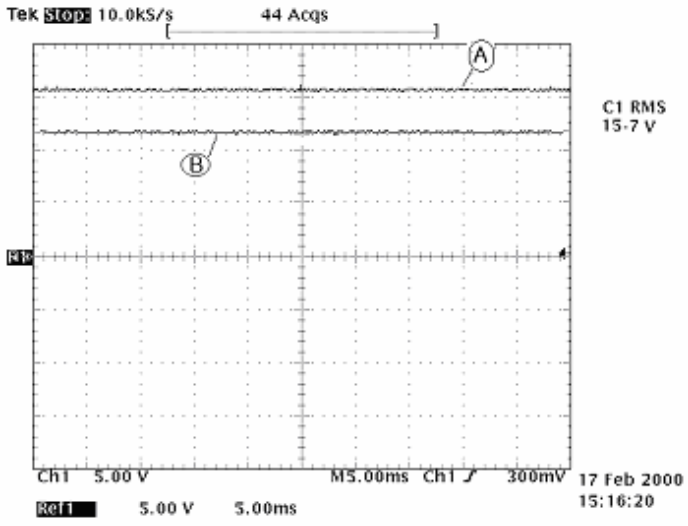
MICOM Circuit

■ Power

Circuit

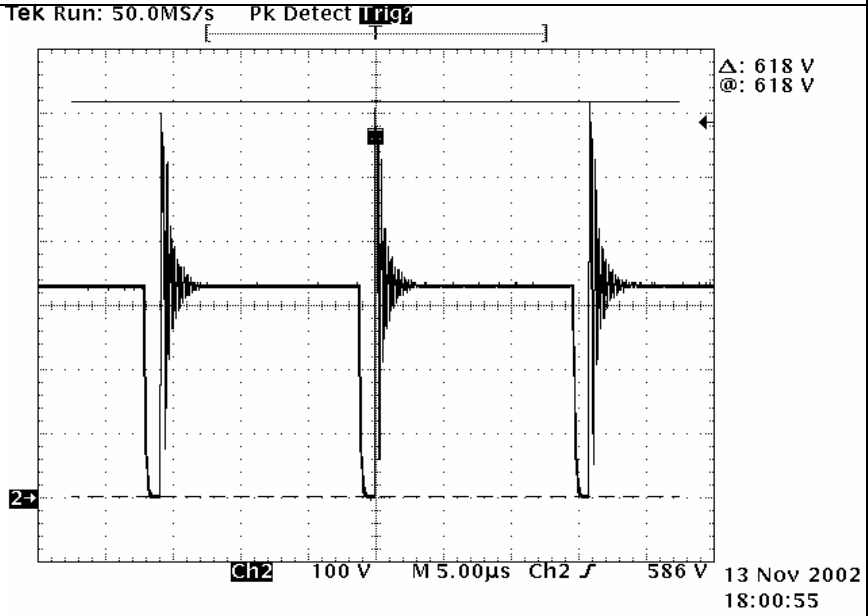


DC Output Power (Voltage)

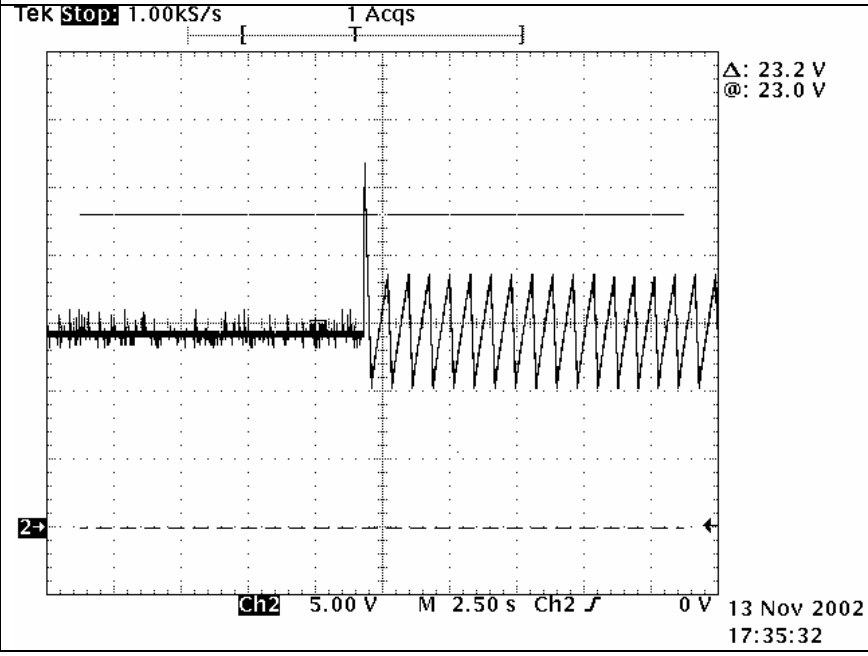
Point	Oscilloscope Measurement	Remarks
		* DC output 15.7V 11.96V

■ SMPS Movement Wave

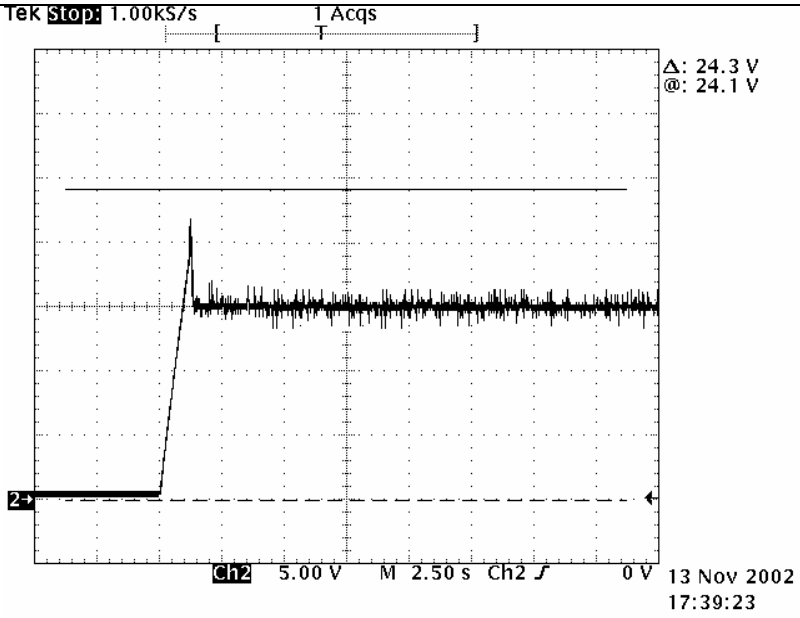
Drain to Source Break Voltage

Point	Oscilloscope Measurement	Remarks
SMPS IC PIN 1,2		*Voltage between DRAIN and SOURCE : below 650V

OVP(Overvoltage Protection) Wave at power input

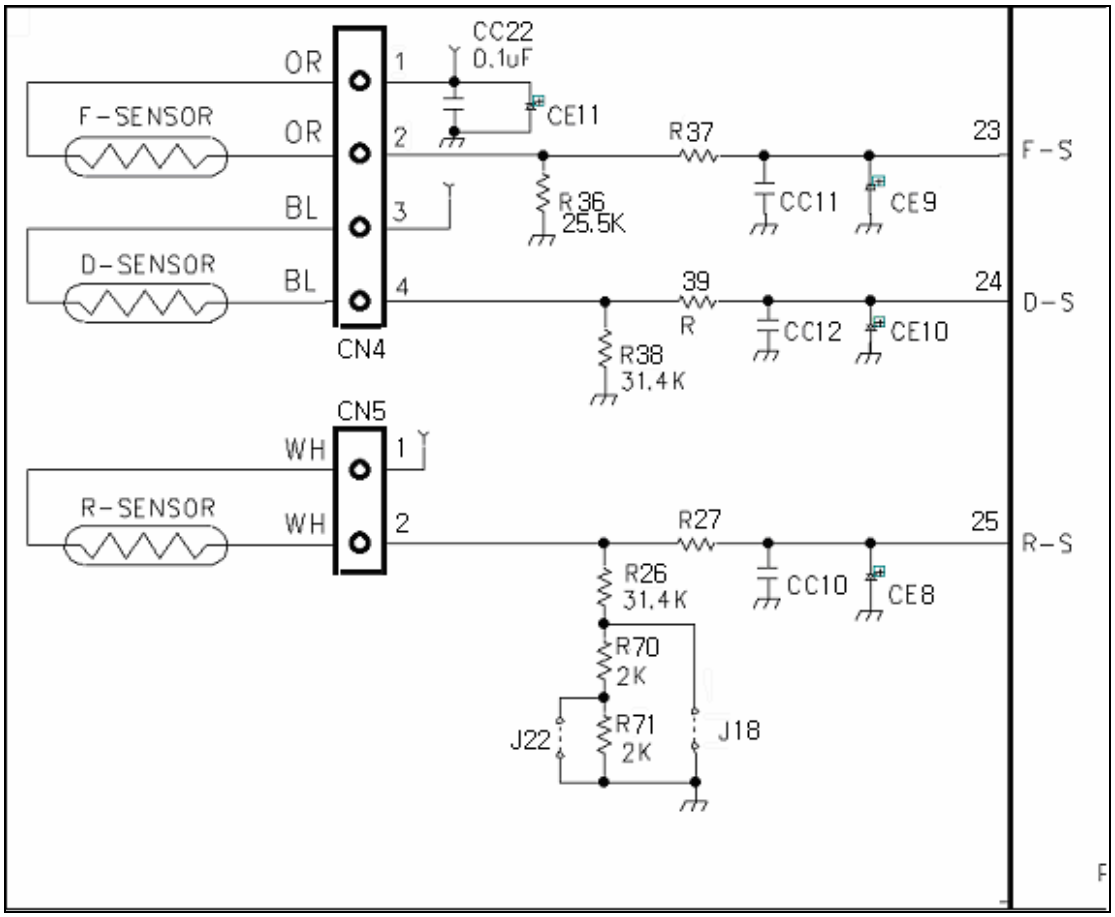
Point	Oscilloscope Measurement	Remark
SMPS IC PIN 3,4		*Minimum standard voltage at OVP start : 23.2V

Initial Power Wave of Switching Power IC

Point	Oscilloscope Measurement	Remark
SMPS IC PIN 3,4		

■ Sensors

Circuit Diagram



■ Function of Each Sensor

[F-sensor]

1) It senses the temperature of freezer compartment and controls Comp., F-fan ON / OFF.

2) How it works ;

Working Point	Low ON	Mid OFF	High OFF
Working Temp.	-11.0 C	-20.0 C	- 26.0 C
Resistance	≒ 14.74 kΩ	≒ 22.33 kΩ	≒ 30.92 kΩ
Sensing Voltage	3.50 V	3.00 V	2.14 V

[D-sensor]

-> It senses return point of defrosting heater.

Working Point	Return point of defrosting heater
Working Temp.	10 C
Resistance	≒ 19.53 kΩ
Sensing Voltage	3.1 V

[R-sensor]

1) It senses the temperature of refrigerator compartment and controls R-fan ON / OFF.

2) How it works ;

Working Point	Low ON	Mid OFF	High OFF
Working Temp.	2.65 C	0.3 C	-1.7 C
Resistance	≒ 26.88 kΩ	≒ 29.34 kΩ	≒ 32.00 kΩ
Sensing Voltage	≒ 2.90V	≒ 2.81V	≒ 2.74V

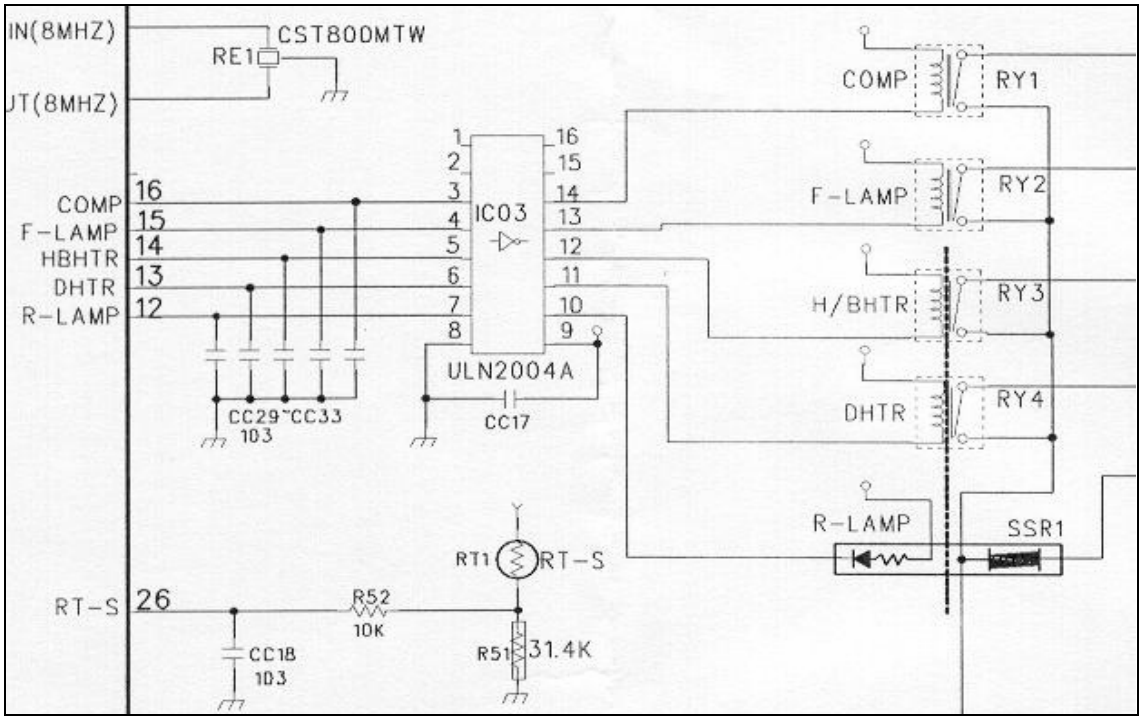
* In case refrigeration of refrigerator compartment is poor or insufficient though comp. and R-fan operate in normal way ;

1) Cut J18 on M-PCB, then temp. is lowered -2 C than [Mid OFF point].

2) In addition to 1) action, cut J22 on M-PCB, then the temp. is lowered –1 C more.

■ Relay Function

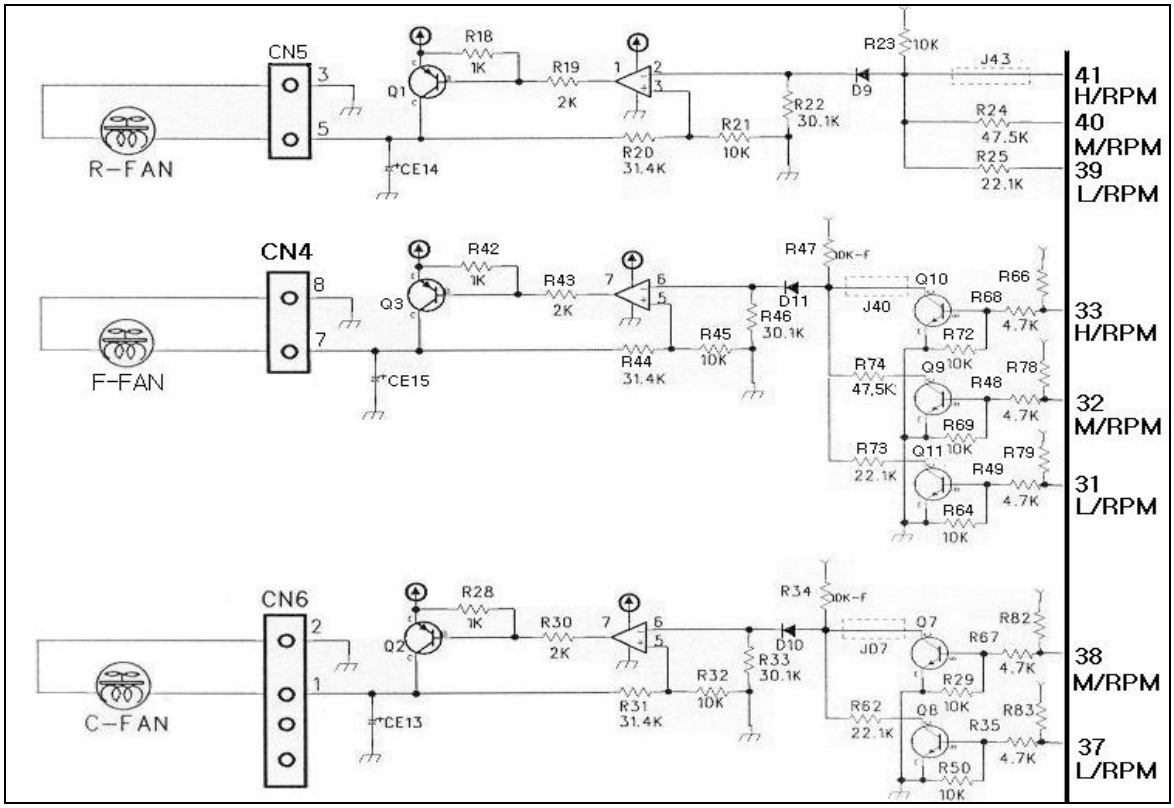
Circuit Diagram



How it works ;

Control	Control Method	ON Condition		OFF Condition	
		MICOM Port	IC3 Output Pin	MICOM Port	IC03 Output Pin
COMP	RELAY	# 16 ≒ 3.7V	# 14 ≒ 0.7V	# 16 ≒ 0V	# 14 ≒ 12V
F-LAMP	RELAY	# 15 ≒ 3.7V	# 13 ≒ 0.7V	# 15 ≒ 0V	# 13 ≒ 12V
HB-HTR	RELAY	# 14 ≒ 3.7V	# 12 ≒ 0.7V	# 14 ≒ 0V	# 12 ≒ 12V
HTR	RELAY	# 13 ≒ 3.7V	# 11 ≒ 0.7V	# 13 ≒ 0V	# 11 ≒ 12V
R-LAMP	RELAY or SSR	# 12 ≒ 3.7V	# 10 ≒ 0.7V	# 12 ≒ 0V	# 10 ≒ 12V

■ Fan Function



How It Works ;

Control Object	Control Method	ON Condition				OFF Condition			
		MICOM Port			IC Collector	MICOM Port			IC Collector
		31	32	33		31	32	33	
F-FAN	Low (10V) operation	5V	0V	0V	10.35V	5V	5V	5V	0V
	Mid (12V) operation	0V	5V	0V	12.19V				0V
	High (14V) operation	0V	0V	0V	14.38V				0V

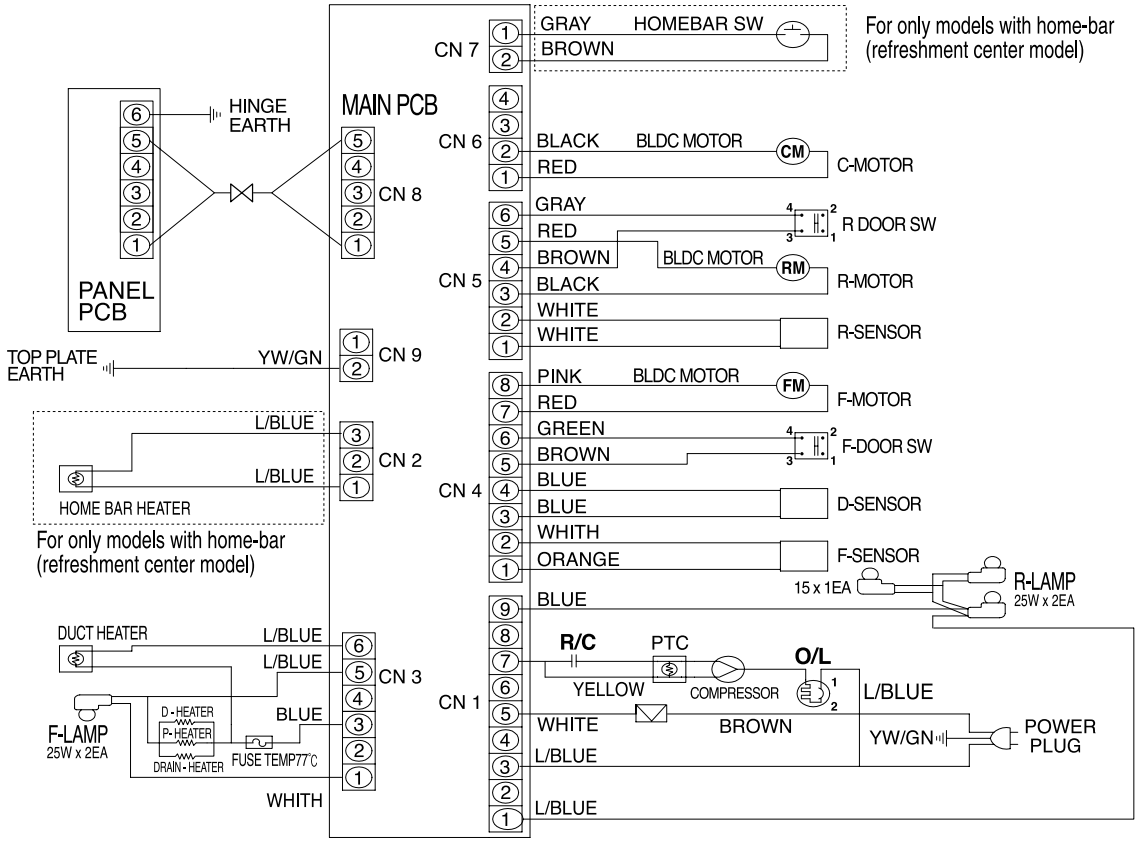
Control Object	Control Method	ON Condition				OFF Condition			
		MICOM PORT			IC Collector	MICOM Port			IC Collector
		39	40	41		39	40	41	
R-FAN	Low (10V) operation	0V	5V	5V	10.38V	0V	0V	0V	0V
	Mid (12V) operation	5V	0V	5V	12.24V				0V
	High (14V) operation	5V	5V	5V	14.42V				0V

Control Object	Control Method	ON Condition			OFF Condition		
		MICOM Port		IC Collector	MICOM Port		IC Collector
		37	38		37	38	
C-FAN	High (14V) operation	0V	0V	14.54V	5V	5V	0V
	Low (10V) operation	5V	0V	10.45V			0V

4. DIAGRAM

4-1. WIRING DIAGRAM

WIRING DIAGRAM

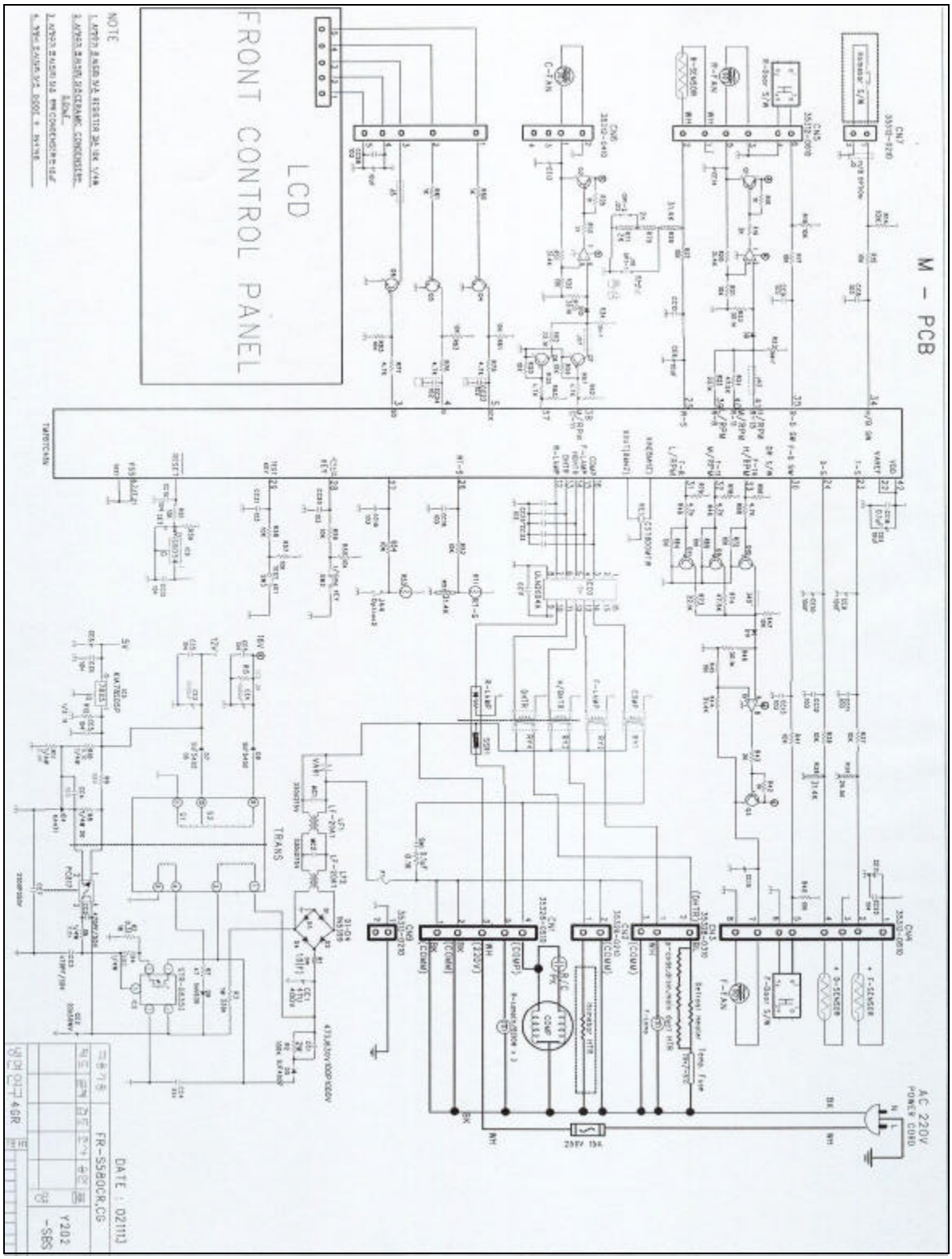


NOTICE 1. Allow 10 cm or more clearance between wall and side and rear plate of the refrigerator for good fresh air circulation.

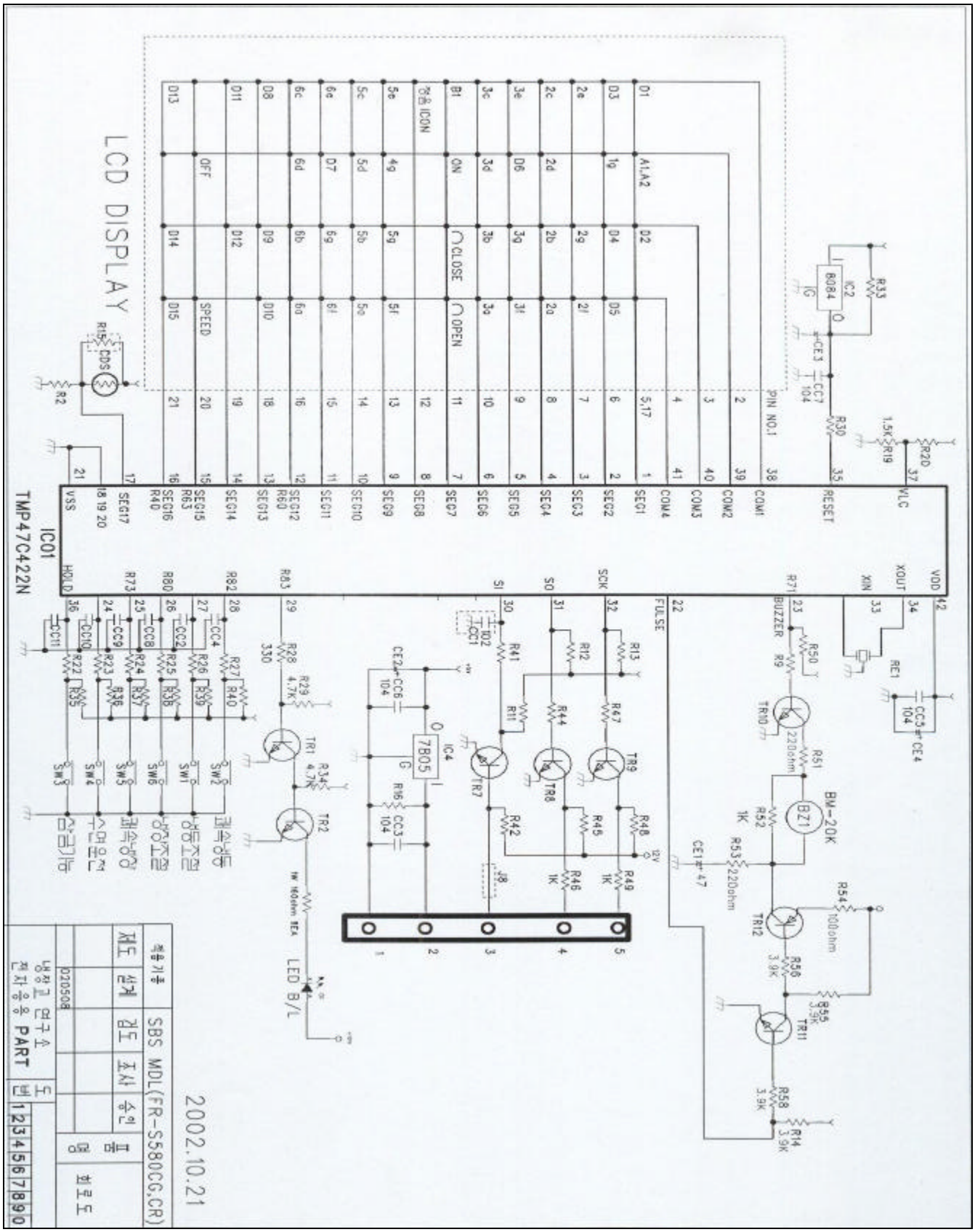
CODE:WSBS1-3

4-2. CIRCUIT WIRING DIAGRAM

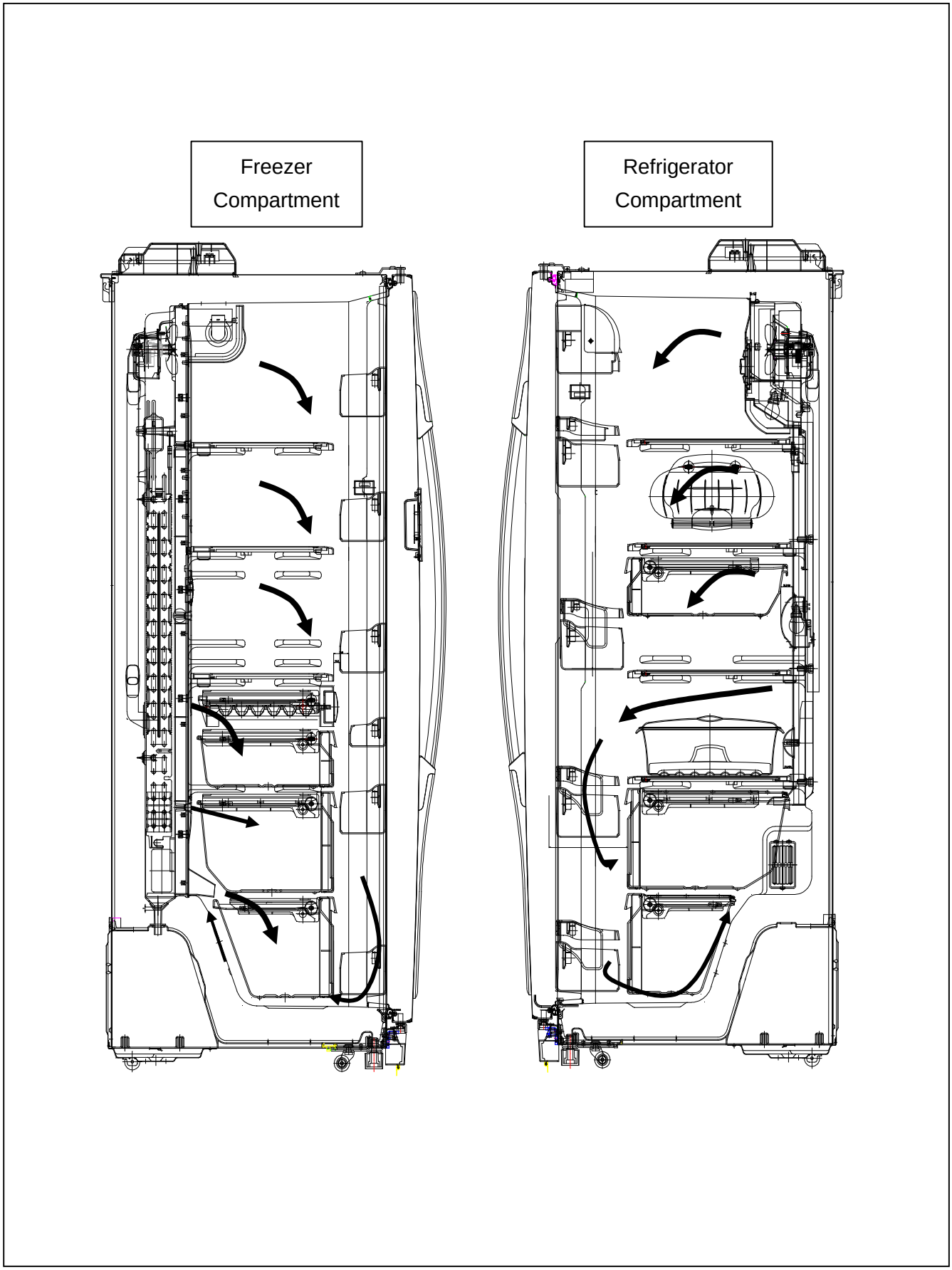
Main PCB



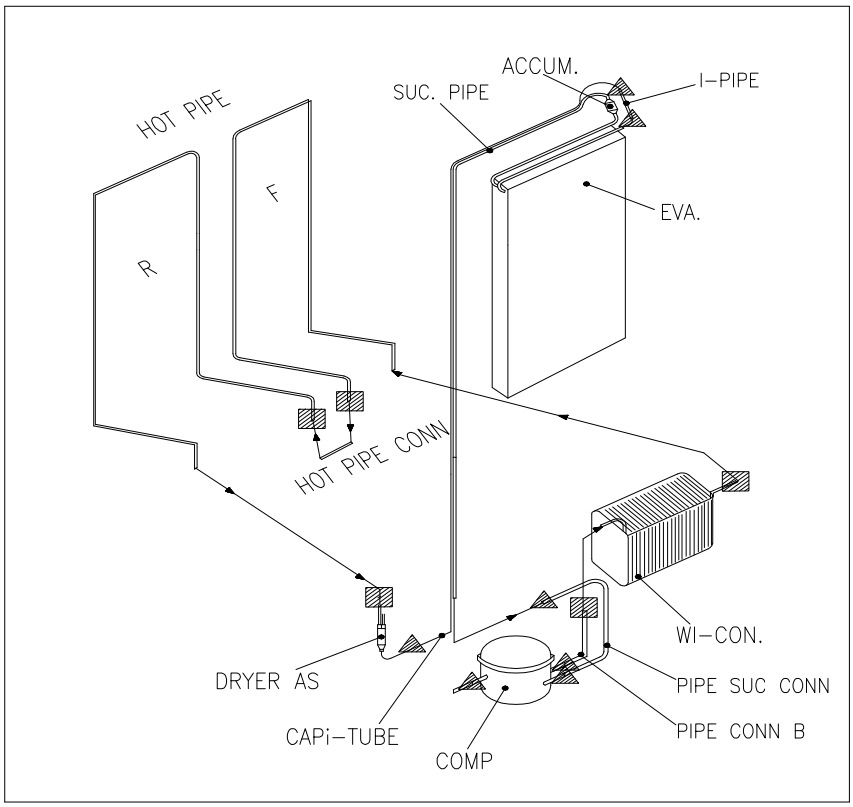
Front PCB


LCD DISPLAY
IC01
TMP47C422N
BM-20K
SBS MDL(FR-S580CG,CR)
2002.10.21
냉장고 연구소
전자응용 PART
회로도

4-3. AIR FLOW DIAGRAM



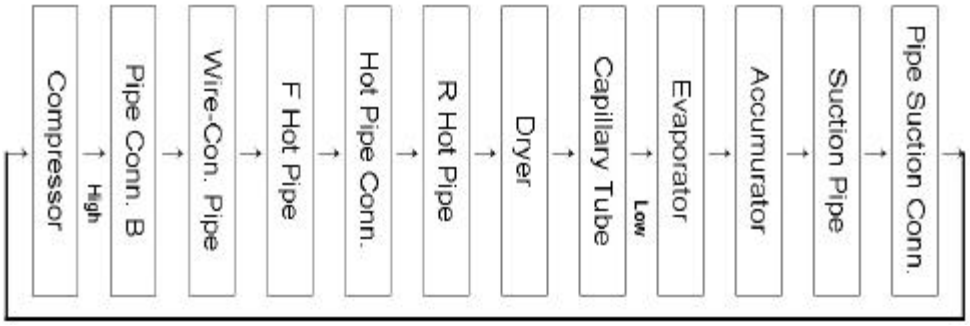
4-4. REFRIGRANT CYCLE DIAGRAM



Welding Points

◬	5 %	7 points
▨	35 %	5 points

Flow of Refrigeration Cycle



5. DISASSSEMBLY AND ASSEMBLY

5-1. Replacing Freezer Parts

1) Exchanging F-lights

* Remove screw cap with a small tip (-) driver on the bottom of light cover

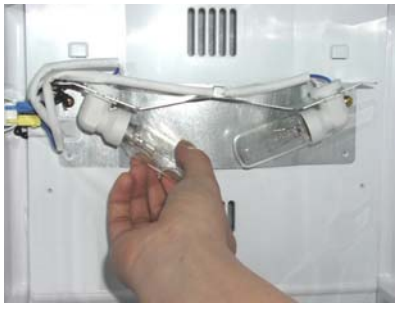
▼

▼

* Pull down the light cover smoothly to remove.

▼

* Replacing F-lights.
  - Assembling order is the reverse of disassembling.



2) Ice Cubes Maker & Ice Cubes Case

* Pull forward Ice case and lift up a little to remove then pull Ice cubes maker.

3) Drying Case & Meat Case

* Pull forward and lift up a little like Ice case.
  - Fruit case, vegetable case and chilled case in Refrigerator are the same way.

4) Front Cover

* At first remove the screw caps with a (-) driver.
* Unscrew three screws with a (+) dirver.
* Assembling order is the reverse of disassembling. In order to assemble, match front cover to the cabinet groove before screwing.

5) Freezer (Refrigerator) Pockets

* Hold the middle and pull up slightly.
  (Assembling order is the reverse of disassembling.)

  - Ref Pockets are the same way.

6) F-Louver Parts Disassembling.

* Open the door fully and remove the shelves.

* Remove screw cap on the bottom of light cover and unscrew two screws with a (+) driver to separate the light cover. **[Refer to 1) Exchanging F-lights]**

▼

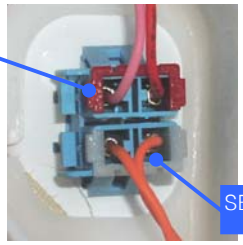
* Seperate F-lights housing & Heater housing
  (Eva front cover) from the interior side terminals.

* Remove screw caps on F-louver A/B with a (-) driver and then unscrew three screws with a (+) driver.

▼

* Hold both end and pull forward smoothly.

* Separate sensor housing
  on the top of F-louber C.



* Hold the bottom nose of cover and pull
  forward out smoothly.

* Separate Moter Housing and remove three screws.

* In order to disassemble F-louver C, separate hook
with a (-) driver and pull out smoothly.

* Like F-louver C, remove F-louver D.
  (Assembling order is the reverse of disassembling.)

7) Front Control Pannel

* Insert a flat tip driver into the left down groove of panel frame and snap it out smoothly.
* Remove housing from F-PCB and screws on the board to change for a new one.
* Assembling is the reverse order of disassembling.

5-2. Replacing Refrigerator Parts

1) Deodorizer

* Turn deodorizer counterclockwise.
  (Assembling is the reverse order of disassembling.)

2) Top R-Light

* Like F-lights, remove two screw caps at the bottom of light cover with a (-) driver.

* Unscrew two screws with a (+) driver.

* Pull down R-light cover a little to separate the hook and pull out forward smoothly.

* Replacing the bulb.
  (Assembling is the reverse order of disassembling.)

3) Refrigerator Bottom Light

* Snap out the bottom hook of light cover with a flat tip screw driver.
* Hold down the light cover to pull out.
* Change the light bulb.
  (Assembling is the reverse order of disassembling.)

4) Wine Holder

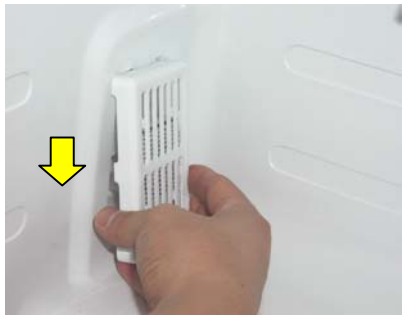
* Remove two screw caps on the top of Wine holder with a (-) driver.
* Unscrew 2 screws with a (+) dirver.
* Hold end of wineholder and pull up smoothly after seperating completely fixed hook.
  (Assembling is the reverse order of disassembling.)

5) Shelves

* Pull forward shelves and lift up a little to remove.
  (Freezer shelves are the same way.)

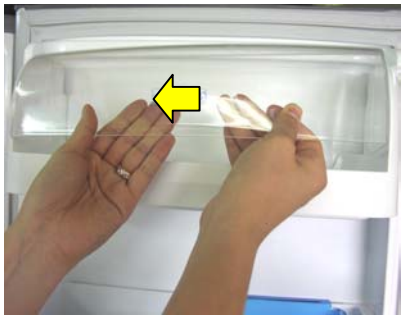
6) Return Duct Cover

* Pull out the cover to arrow direction.



7) Dairy Pocket

* Pull forward and lift up a little.



8) Refreshment Pocket (Only for FRS-2041)

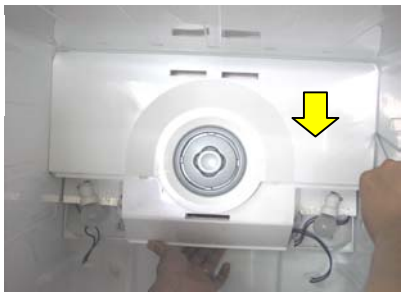
* Hold both end and pull up to remove the pocket.
* Lift up a little and then pull forward out.

9) Refrigerator interior parts

* Remove foods and shelves of R-compartment.
* Remove screws caps with a tiny tip screw driver and remove light cover screws with a (+) screw driver (**Refer to 2) Top R-Light**)
* Disassemble RAMP R A HOUSING, SENSOR HOUSING and RAMP R B HOUSING.

* Unscrew two screws on the left and right side of DAMP COVER.

* Hold the bottom and right of damper to pull down to remove.



* After removing bottom R-light cover, unscrew with a (+) driver. (**Refer to 3) Refrigerator Bottom Light**)

* Hold top of the MULT DUCT COVER AS and pull forward to remove.

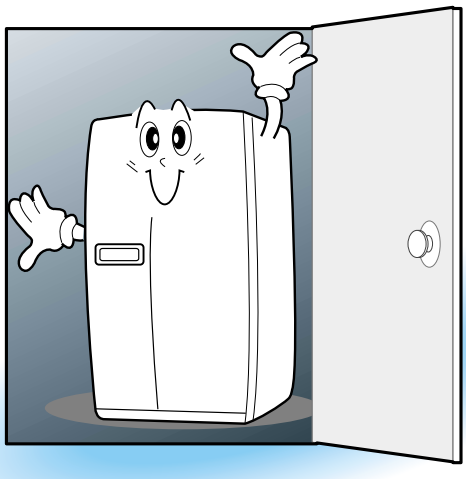
* Remove FAN HOUSING on the right side.
  (Unscrew two screws on the FIXTURE MOTOR B.)
* Assembling is the reverse order of disassembling.
  When assembling, be careful not to disturb Fan.

6. INSTALLATION GUIDE

6-1. Installation Preparation

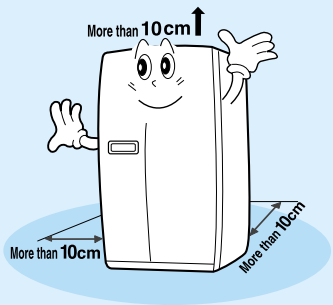
Check if the refrigerator can pass a doorway or enter a door first.

Dimensions(including Door Handles)
(Width*Depth*Height) 928mm * 816mm * 1808mm

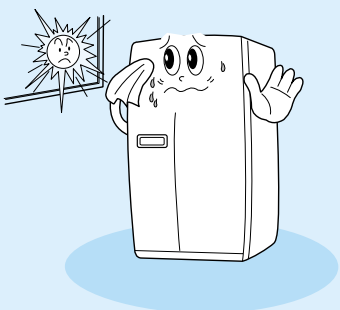


Find a suitable place to install.

Sufficient space from refrigerator back to the wall for free air ventilation



Avoid direct sunlight.



Note

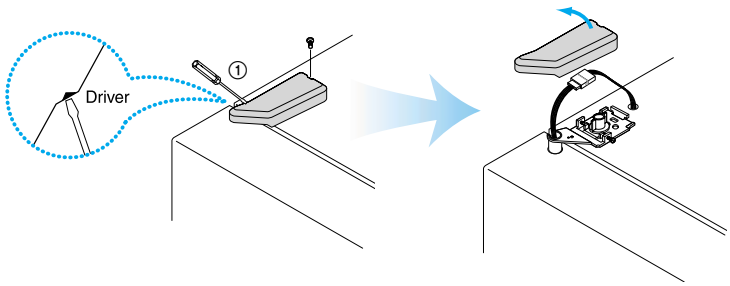
Once the installation place is ready follow the installation instructions.
If surround temperature of refrigerator is low (below 5C), foods can be frozen or the refrigerator can work in abnormal way.

6-2. If the refrigerator can not enter the door, follow these steps.

Removing Freezer Door

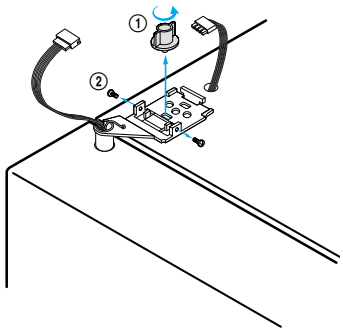
Remove front bottom cover first, if it is attached.

1 Unscrew top hinge cover with a screw driver.
Insert a thin screw driver into the side groove of the cover to remove.



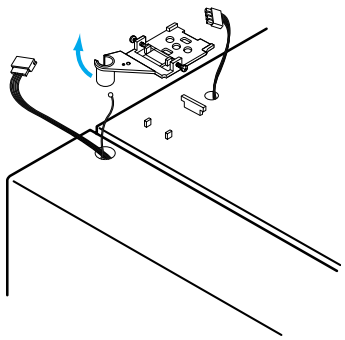
NEXT

2 Turn top hinge fastener counterclockwise 3~4 times. (Just make it loose ; do not remove.)
Disconnect the harness wires.
Loosen hinge screws for several turn.
(Just make them loose ; do not remove.)



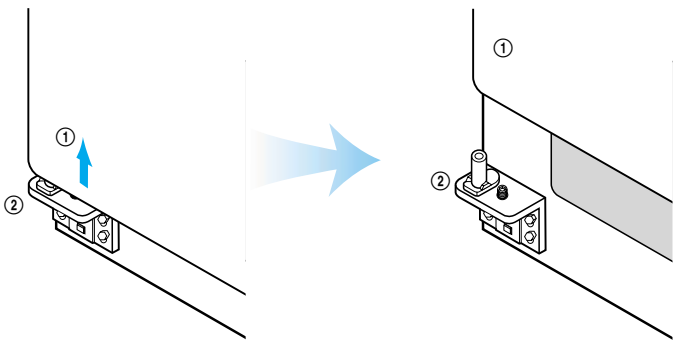
NEXT

3 Lift up the front of hinge to remove. (After the hinge is removed the door can fall down forward. Be careful !)



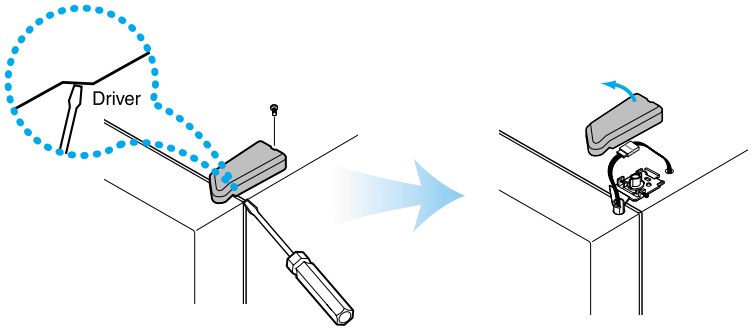
NEXT

4 Lift the door straight up to remove.



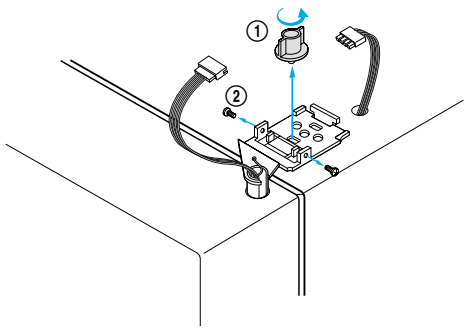
Removing Refrigerator Door

1 Unscrew top hinge cover with a screw driver.
Insert a thin screw driver into the side groove of the cover to remove.



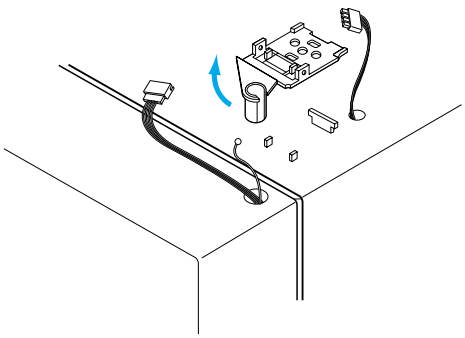
NEXT

2 Turn top hinge fastener counterclockwise 3~4 times. (Just make it loose ; do not remove.)
Disconnect harness wires.
Loosen hinge screws for several turn.
(Just make them loose ; do not remove.)



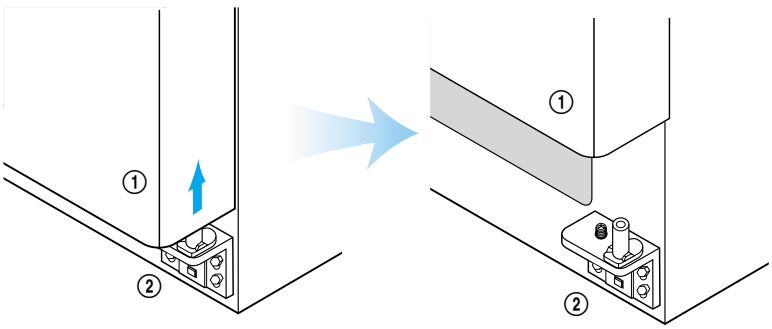
NEXT

3 Lift up the front of hinge to remove. (After the hinge is removed the door can fall down forward. Be careful !)



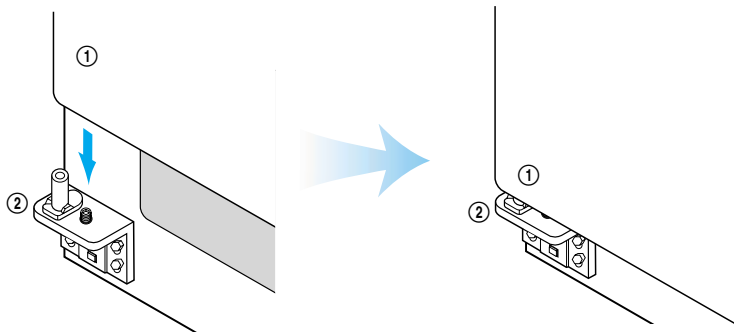
NEXT

4 Lift the door straight up to remove.



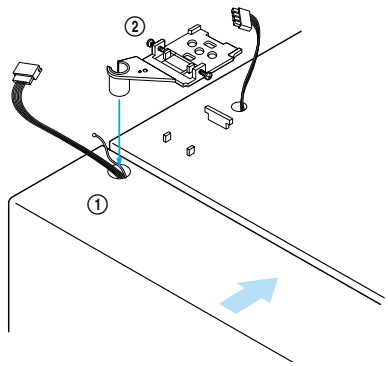
Replacing Freezer Door

1 Insert the bottom hole of freezer door straight to the bottom hinge pin.



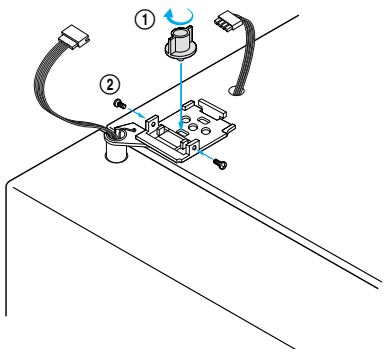
NEXT

2 Let the top of door close to the cabinet and insert the top hinge pin to the top hole of freezer door.
(Insert the back of hinge to the groove of protrusion first, then front to the top hole of door.)



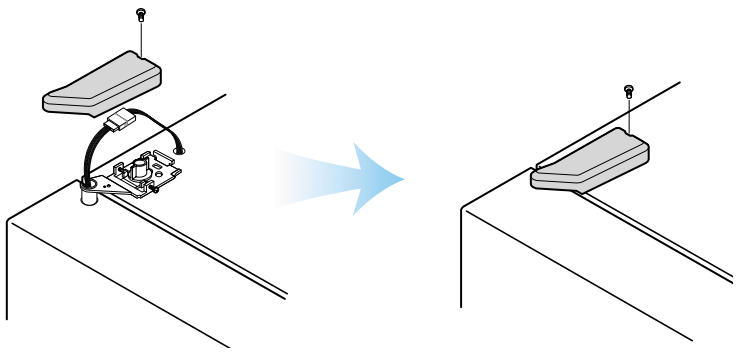
NEXT

3 Turn the fastener clockwise several times. (Do not turn it to the end.)
Adjust the level of door and fasten the top hinge with 2 (left & right) screws.
Turn the hinge fastener tightly to the end.
Connect harness wirings and screw ground wire.



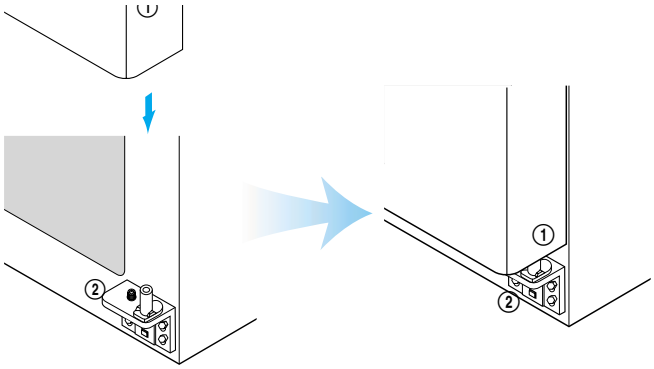
NEXT

4 Click and screw the top hinge cover.



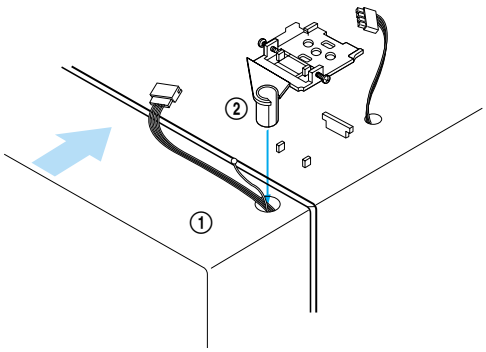
Replacing Refrigerator Door

1 Insert the bottom hole of refrigerator door straight to the bottom hinge pin.



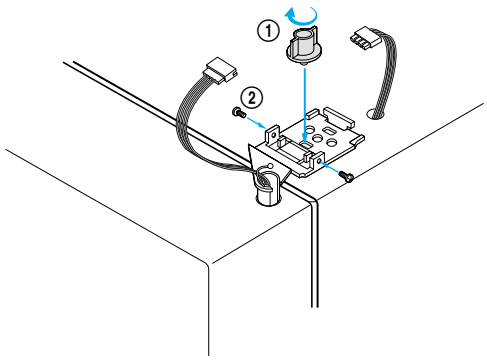
NEXT

2 Let the top of door close to the cabinet and insert the top hinge pin to the top hole of freezer door.
(Insert the back of hinge to the groove of protrusion first, then front to the top hole of door.)



NEXT

3 Turn the fastener clockwise several times. (Do not turn it to the end.)
Adjust the level of door and fasten the top hinge with 2 (left & right) screws.
Turn the hinge fastener tightly to the end.
Connect harness wirings and screw ground wire.
Click and screw the top hinge cover.

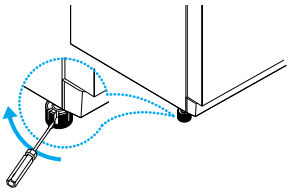


6-3. Refrigerator Leveling & Door Adjustment (If needed.)

Refrigerator must be level in order to maintain optimal performance and desirable front appearance.
(If the floor beneath the refrigerator is uneven, freezer and refrigerator doors look unbalanced.)

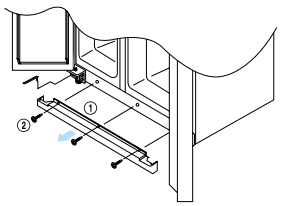
In case freezer door is lower than refrigerator door...

1 Insert a screw driver (flat tip) into a groove of the left wheel (bottom of freezer) and turn it clockwise until the door is balanced. (clockwise to raise freezer door ; counterclockwise to lower)
Unless the freezer door is balanced by step 1, then follow the next steps.



NEXT

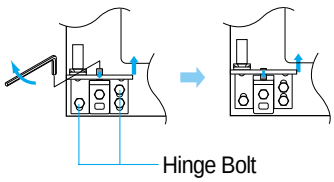
2 Open the doors, unscrew the front cover and remove, if it is attached.



NEXT

3 Loosen 3 hinge bolts(1 on the left + 2 on the right) a little. (Do not unfasten them completely.) Insert a hexagonal wrench into the groove of adjusting nut and turn clockwise until the door is level.

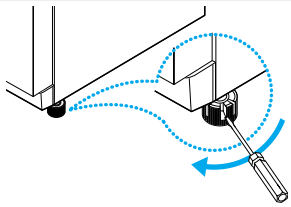
4 Once the door is balanced, fasten the hinge bolts tightly and screw the front cover.



In case refrigerator door is lower than freezer door...

1 Insert a screw driver (flat tip) into a groove of the right wheel (bottom of refrigerator) and turn it clockwise until the door is balanced. (clockwise to raise refrigerator door ; counterclockwise to lower)

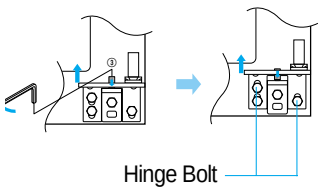
Unless the refrigerator door is balanced by step 1, then follow the next steps.



NEXT

2 Loosen 3 hinge bolts(2 on the left + 1 on the right) a little. (Do not unfasten them completely.)
Insert a hexagonal wrench into the groove of adjusting nut and turn clockwise until the door is level.

3 Once the door is balanced, fasten the hinge bolts tightly.



Front Cover

After installation and/or door leveling, fasten front cover with screws.(Remove the screws on the front bottom panel first. Click and screw the cover)

Notice

The front of refrigerator needs to be higher just a little than the back for easy door closing, but if the wheel is raised too much for door balance, i.e. front of refrigerator is too higher than the back, it can be difficult to open the door.

6-4. Door Gap Adjusting

In case top and bottom gap of both doors are not the same, take the following steps to adjust.
(gap beteen the top right edge of feezer door and top left of refrigerator door)

1 First unscrew and remove top hinge covers.
refer to page 52~53

2 Turn the hinge fastener counterclockwise 2~3 times just to loosen. (Do not remove the fastener.)

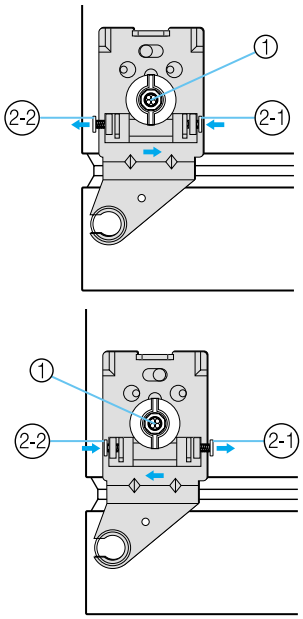
Adjustment of freezer door

Moving to the right

1) Loosen the left screw(2-2) enough. (Do not remove the screw.)
2) Turn the right screw(2-1) clockwise, then hinge and top of freezer door moves to the right.
3) Once the gap is adjusted, fasten the left screw(2-2) tightly.

Moving to the left

1) Loosen the right screw(2-1) enough. (Do not remove the screw.)
2) Turn the left screw(2-2) clockwise, then hinge and top of freezer door moves to the left.
3) Once the gap is adjusted, fasten the right screw(2-1) tightly.



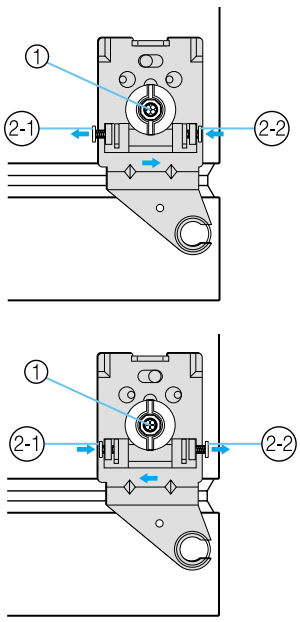
Adjustment of refrigerator door

Moving to the right

1) Loosen the left screw(2-1) enough. (Do not remove the screw.)
2) Turn the right screw(2-2) clockwise, then hinge and top of freezer door moves to the right.
3) Once the gap is adjusted, fasten the left screw(2-1) tightly.

Moving to the left

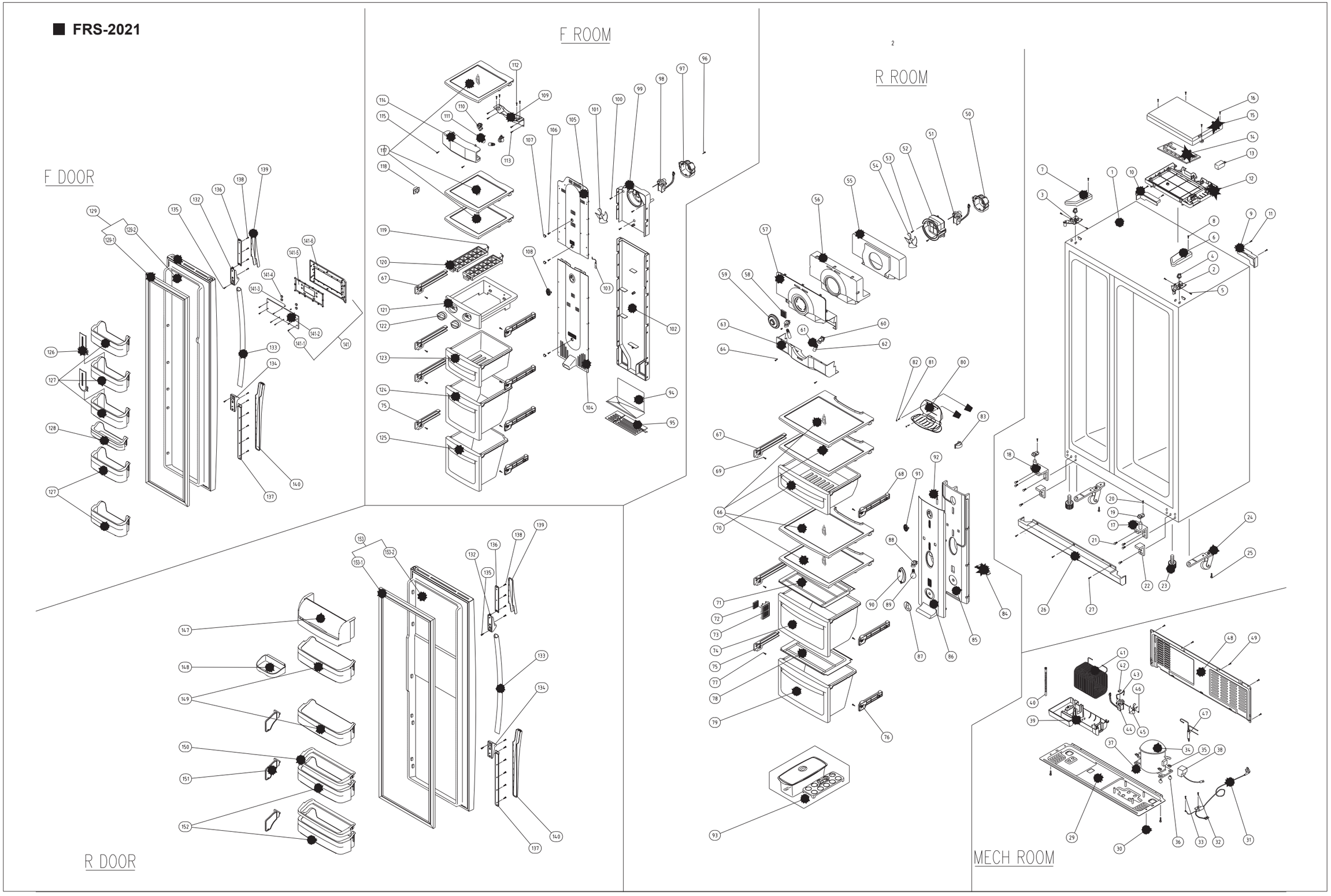
1) Loosen the right screw(2-2) enough. (Do not remove the screw.)
2) Turn the left screw(2-1) clockwise, then hinge and top of freezer door moves to the left.
3) Once the gap is adjusted, fasten the right screw(2-2) tightly.



7. EXPLODED VIEW AND PARTS LIST

7-1. Total Exploded View

■ **FRS-2021**



■ FRS-2041

F DOOR

F ROOM

R ROOM

MECH ROOM

R DOOR

7-2. Total Parts List

■ FRS-2021

✔ **Caution**: In this Service Manual, some parts can be changed for improving, their performance without notice in the parts list. So, if you need the latest parts information, please refer to PPL(Parts Price List) in Service information Center(http://svc.dwe.co.kr)

NO	PART CODE	PART NAME	PART DESCRIPTION	QUANTITY	REMARK
1	3000003600	ASSY CAB URT		1	
2	3012917600	HINGE *T *R AS	PO T3.0	1	
3	3012918500	HINGE *T *L AS	PO T3.0	1	
4	3012013000	FIXTURE *T HI	PP	2	
5	3016031300	SPECIAL *T HI BOLT	SWCH10A M5 x 10.5	4	
6	3011472400	COVER HI *T *R	PP	1	
7	3011472300	COVER HI *T *L	PP	1	
8	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	2	
9	3012601301	HANDLE CAB COVR *R	PP	1	
10	3012601201	HANDLE CAB COVR *L	PP	1	
11	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	1	
12	3010533400	BOX MAIN PCB	PP	1	
13	3016401170	CAPACITOR RUN		1	
14	30143B4010	PCB MAIN AS		1	
15	3011472610	COVER MAIN PCB BOX	PP	1	
16	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	1	
17	3012917810	HINGE *U *R AS	PO T5.0+PAINTING	1	
18	3012917710	HINGE *U *L AS	PO T5.0+PAINTING	1	
19	3012513300	GUIDE *U HINGE *U	POM	2	
20	7002501611	SCREW MACHINE	TRS M5 x 16 MFZN	2	
21	3016001240	SPECIAL BOLT *T	6 x 22 SWCH22A(YL)	8	
22	3015306700	SUPPORTER *U HI AS	PO T5.0	2	
23	3012104400	FOOT ADJUST AS		2	
24	3016501200	CASTER TURN AS	TURN CASTER	2	
25	3016001240	SPECIAL BOLT *T	6 x 22 SWCH22A(YL)	2	
26	3011471010	COVER CAB BRKT	PP	1	
27	7142401611	SCREW TAPPING	T2 TRS 4 x 16 MFZN	3	
29	3010326700	BASE COMP AS	SBHG T1.2	1	
30	3016003300	SPECIAL BOLT	T2 M6.5 x 20 4EA	4	
31	3011344200	CORD POWER AS	250V 12A	1	
32	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	1	
33	7051401065	SCREW MACHINE	PAN 4 x 10 SW BSNI	1	
34	3956183D40	COMP	MK183B-L2U	1	
35	3016002500	SPECIAL WASHER	SK-5 T0.8	4	
36	3010101440	ABSORBER COMP AS		4	
38	3817925100	RELAY STARTING	J1531Q34E220M3502 RSCR S/S	1	
39	3011113500	CASE VAPORI	PP + CTALC	1	
40	3013201700	HOSE DRAIN	PEHD	1	
41	3014413730	PIPE WICON AS		1	
42	3010102100	ABSORBER C MOTR	NR FRB-5350NT	1	
43	3012004400	FIXTURE C MOTR	SUS	1	
44	3015911500	MOTOR C FAN AS	DC12V 2.5W	1	
45	3011802200	FAN	ABS (O.D.)3.17 x D110	1	
46	3011200500	CLAMP FAN	SUS 304	1	
47	3016806900	DRYER AS	XH-9 15g	1	
48	3011474710	COVER MACH ROOM AS	SBHG T0.4	1	
49	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	6	
50	3012007800	FIXTURE MOTOR A	PP	1	
51	3015911400	MOTER R FAN AS		1	

NO	PART CODE	PART NAME	PART DESCRIPTION	QUANTITY	REMARK
52	3012007900	FIXTURE MOTOR B	HIPS	1	
53	7122401211	SCREW TAPPING	T2S TRS 4 x 12 MFZN	2	
54	3011802200	FAN	ABS (O.D.)3.17 x D110	1	
55	3013344200	INSU DAMP B	F-PS	1	
56	3013344100	INSU DAMP A	F-PS	1	
57	3011471200	COVER DAMP	HIPS	1	
58	3018701800	DEO ANTI AS		1	
59	3011471310	COVER DEO	ABS	1	
60	3017905300	SOCKET R LAMP AS		2	
61	7121300811	SCREW TAPPING	T2S PAN 3 x 8	1	
62	3013602000	LAMP R A	AC240V 25W	2	
63	3015507900	WINDOW R LAMP A	MIPS	1	
64	3016002710	SPECIAL SCREW	4 x 12	2	
66	3017827300	SHELF R A AS	GLASS + HIPS	4	
67	3012514500	GUIDE CASE A *L AS	ABS	2	
68	3012514600	GUIDE CASE A *R AS	ABS	2	
69	7142401611	SCREW TAPPING	T2 TRS 4 x 16 MFZN	4	
70	3011171200	CASE CHILD AS	GPPS + HIPS	1	
71	3011473100	COVER VEGETB CASE A	GPPS	1	
72	3018701800	DEO ANTI AS		1	
73	3011472900	COVER RETURN DUCT	HIPS	1	
74	3011172000	CASE VEGETB A AS	GPPS + HIPS	1	
75	3012514700	GUIDE CASE B *L AS	ABS	1	
76	3012514800	GUIDE CASE B *R AS	ABS	1	
77	7142401611	SCREW TAPPING	T2 TRS 4 x 16 MFZN	2	
78	3011473200	COVER VEGETB CASE B	GPPS	1	
79	3011172100	CASE VEGETABLE B AS	GPPS + HIPS	1	
80	3017827500	SHELF WINE AS	ABS	1	
81	3016002710	SPECIAL SCREW	4 x 12	2	
82	3010903200	CAP SCREW	PE	2	
83	3018124000	SWITCH LAMP	SP201R-7DR	1	
84	3017100500	FLAP MULT DUCT	PP	1	
85	3013345000	INSU MULT DUCT AS	F-PS	1	
86	3011472700	COVER MULT DUCT	HIPS	1	
87	3013408100	KNOB MULT DUCT	ABS	1	
88	3017905310	SOCKET R LAMP AS	250V 1A	1	
89	3013600020	LAMP R B	AC240V 15W	1	
90	3015508000	WINDOW R LAMP B	MIPS	1	
91	3011473000	COVER SENS	ABS	1	
92	3014805400	SENSOR R AS	PBN-438	1	
93	3011171300	CASE EGG AS	GPPS	1	
94	3012514200	GUIDE DRN	GA	1	
95	3012811100	HEATER DRN GUIDE AS	220V/ 45W	1	
96	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	1	
97	3012007800	FIXTURE MOTOR A	PP	1	
98	3015911300	MOTOR F FAN AS	DC12V 2.5W	1	
99	3018914400	LOUVER F C	PP	1	
100	7142401611	SCREW TAPPING	T2 TRS 4 x 16 MFZN	3	
101	3011802200	FAN	ABS (O.D.)3.17 x D110	1	
102	3018914900	LOUVER F D AS	PP	1	
103	3014805300	SENSOR F AS	PT-38	1	
104	3018914700	LOUVER F B AS	HIPS	1	
105	3018914610	LOUVER F A AS	HIPS	1	
106	7142401611	SCREW TAPPING	T2 TRS 4 x 16 MFZN	3	
107	3010924600	CAP F LUVR	HIPS	3	
108	3011473000	COVER SENS	ABS	1	

NO	PART CODE	PART NAME	PART DESCRIPTION	QUANTITY	REMARK
109	3014559510	PLATE LAMP F	SBHG T0.8	1	
110	3017905200	SOCKET F LAMP AS		2	
111	3013602000	LAMP F	AC240V 25W	2	
112	7121300811	SCREW TAPPING	T2S PAN 3X8 MFZN	4	
113	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	4	
114	3015507710	WINDOW F LAMP	MIPS	1	
115	3016002710	SPECIAL SCREW	4 x 12	2	
117	3017827100	SHELF F A AS	GLASS + HIPS	3	
118	3018124000	SWITCH LAMP	SP201R-7DR	1	
119	3015101300	SPRING ICING CASE	STS304WPB	2	
120	3011170600	CASE ICING	PP	2	
121	3012203800	FRAME ICE MAKER	ABS	1	
122	3013408000	KNOB ICEING CASE	HIPS	2	
123	3011171800	CASE ICE AS	GPPS + HIPS	1	
124	3011171400	CASE F A AS	GPPS + HIPS	1	
125	3011171500	CASE F B AS	GPPS + HIPS	1	
126	3012516000	GUIDE F POCKET	PP	2	
127	3019019100	POCKET F *U	HIPS	5	
128	3019019000	POCKET F *T	HIPS	1	
129	3000018700	ASSY F DR	FRS-2021	1	
129-1	3012314200	GASKET F DR AS	PVC	1	
129-2	3000003700	ASSY F DR URT		1	
132	3011623800	DECO HNDL *T	ABS	1	
133	3012628500	HANDLE	AL	1	
134	3011613900	DECO HNDL *U	ABS	1	
135	3016031700	SPECIAL SCREW		2	
136	3010326100	BASE DECO COVER *T	HIPS	1	
137	3010326200	BASE DECO COVER *U	HIPS	1	
138	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	8	
139	3011472100	COVER HNDL DECO *T	ABS	1	
140	3011472200	COVER HNDL DECO *U	ABS	1	
141	3011747510	COVER F PCB AS	FRS-2021	1	
141-1	7111300811	SCREW TAPPING	T1 PAN 3 x 8 MFZN	7	
141-2	30143B4110	PCB F AS		1	
141-3	3016302600	BUTTON CONTL B	ABS	2	
141-4	3016303100	BUTTON CONTL A	ABS	4	
141-5	3015507800	WINDOW F PCB	ABS	1	
141-6	3011471600	COVER F PCB	ABS	1	
147	3019019400	POCKET DAIRY AS	GPPS + HIPS	1	
148	3019019300	POCKET R *S	GPPS	1	
149	3019019800	POCKET R *M	HIPS	2	
150	3012514100	GUIDE R POKT	HIPS	2	
151	3012513400	GUIDE BOTL	PP	2	
152	3019019200	POCKET R	HIPS	2	
153	3000018800	ASSY R DR	FRS-2021	1	
153-1	3012314500	GASKET R DR AS	PVC	1	
153-2	3000003800	ASSY R DR URT		1	

■ FRS-2041

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NO	PART CODE	PART NAME	PART DESCRIPTION	QUANTITY	REMARK
1	3000003600	ASSY CAB URT		1	
2	3012917600	HINGE *T *R AS	PO T3.0	1	
3	3012918500	HINGE *T *L AS	PO T3.0	1	
4	3012013000	FIXTURE *T HI	PP	2	
5	3016031300	SPECIAL *T HI BOLT	SWCH10A M5 x 10.5	4	
6	3011472400	COVER HI *T *R	PP	1	
7	3011472300	COVER HI *T *L	PP	1	
8	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	2	
9	3012601301	HANDLE CAB COVR *R	PP	1	
10	3012601201	HANDLE CAB COVR *L	PP	1	
11	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	1	
12	3010533400	BOX MAIN PCB	PP	1	
13	3016401170	CAPACITOR RUN		1	
14	30143B4010	PCB MAIN AS		1	
15	3011472610	COVER MAIN PCB BOX	PP	1	
16	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	1	
17	3012917810	HINGE *U *R AS	PO T5.0+PAINTING	1	
18	3012917710	HINGE *U *L AS	PO T5.0+PAINTING	1	
19	3012513300	GUIDE *U HINGE *U	POM	2	
20	7002501611	SCREW MACHINE	TRS M5 x 16 MFZN	2	
21	3016001240	SPECIAL BOLT *T	6 x 22 SWCH22A(YL)	8	
22	3015306700	SUPPORTER *U HI AS	PO T5.0	2	
23	3012104400	FOOT ADJUST AS		2	
24	3016501200	CASTER TURN AS	TURN CASTER	2	
25	3016001240	SPECIAL BOLT *T	6 x 22 SWCH22A(YL)	2	
26	3011471010	COVER CAB BRKT	PP	1	
27	7142401611	SCREW TAPPING	T2 TRS 4 x 16 MFZN	3	
29	3010326700	BASE COMP AS	SBHG T1.2	1	
30	3016003300	SPECIAL BOLT	T2 M6.5 x 20 4EA	4	
31	3011344200	CORD POWER AS	250V 12A	1	
32	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	1	
33	7051401065	SCREW MACHINE	PAN 4 x 10 SW BSNI	1	
34	3956183D40	COMP	MK183B-L2U	1	
35	3016002500	SPECIAL WASHER	SK-5 T0.8	4	
36	3010101440	ABSORBER COMP AS		4	
38	3817925100	RELAY STARTING	J1531Q34E220M3502 RSCR S/S	1	
39	3011113500	CASE VAPORI	PP + CTALC	1	
40	3013201700	HOSE DRAIN	PEHD	1	
41	3014413730	PIPE WICON AS		1	
42	3010102100	ABSORBER C MOTR	NR FRB-5350NT	1	
43	3012004400	FIXTURE C MOTR	SUS	1	
44	3015911500	MOTOR C FAN AS	DC12V 2.5W	1	
45	3011802200	FAN	ABS (O.D.)3.17 x D110	1	
46	3011200500	CLAMP FAN	SUS 304	1	
47	3016806900	DRYER AS	XH-9 15g	1	
48	3011474710	COVER MACH ROOM AS	SBHG T0.4	1	
49	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	6	
50	3012007800	FIXTURE MOTOR A	PP	1	
51	3015911400	MOTER R FAN AS		1	
52	3012007900	FIXTURE MOTOR B	HIPS	1	
53	7122401211	SCREW TAPPING	T2S TRS 4 x 12 MFZN	2	

NO	PART CODE	PART NAME	PART DESCRIPTION	QUANTITY	REMARK
54	3011802200	FAN	ABS (O.D.)3.17 x D110	1	
55	3013344200	INSU DAMP B	F-PS	1	
56	3013344100	INSU DAMP A	F-PS	1	
57	3011471200	COVER DAMP	HIPS	1	
58	3018701800	DEO ANTI AS		1	
59	3011471310	COVER DEO	ABS	1	
60	3017905300	SOCKET R LAMP AS		2	
61	7121300811	SCREW TAPPING	T2S PAN 3 x 8	1	
62	3013602000	LAMP R A	AC240V 25W	2	
63	3015507900	WINDOW R LAMP A	MIPS	1	
64	3016002710	SPECIAL SCREW	4 x 12	2	
66	3017827300	SHELF R A AS	GLASS + HIPS	4	
67	3012514500	GUIDE CASE A *L AS	ABS	2	
68	3012514600	GUIDE CASE A *R AS	ABS	2	
69	7142401611	SCREW TAPPING	T2 TRS 4 x 16 MFZN	4	
70	3011171200	CASE CHILD AS	GPPS + HIPS	1	
71	3011473100	COVER VEGETB CASE A	GPPS	1	
72	3018701800	DEO ANTI AS		1	
73	3011472900	COVER RETURN DUCT	HIPS	1	
74	3011172000	CASE VEGETB A AS	GPPS + HIPS	1	
75	3012514700	GUIDE CASE B *L AS	ABS	1	
76	3012514800	GUIDE CASE B *R AS	ABS	1	
77	7142401611	SCREW TAPPING	T2 TRS 4 x 16 MFZN	2	
78	3011473200	COVER VEGETB CASE B	GPPS	1	
79	3011172100	CASE VEGETABLE B AS	GPPS + HIPS	1	
80	3017827500	SHELF WINE AS	ABS	1	
81	3016002710	SPECIAL SCREW	4 x 12	2	
82	3010903200	CAP SCREW	PE	2	
83	3018124000	SWITCH LAMP	SP201R-7DR	1	
84	3017100500	FLAP MULT DUCT	PP	1	
85	3013345000	INSU MULT DUCT AS	F-PS	1	
86	3011472700	COVER MULT DUCT	HIPS	1	
87	3013408100	KNOB MULT DUCT	ABS	1	
88	3017905310	SOCKET R LAMP AS	250V 1A	1	
89	3013600020	LAMP R B	AC240V 15W	1	
90	3015508000	WINDOW R LAMP B	MIPS	1	
91	3011473000	COVER SENS	ABS	1	
92	3014805400	SENSOR R AS	PBN-438	1	
93	3011171300	CASE EGG AS	GPPS	1	
94	3012514200	GUIDE DRN	GA	1	
95	3012811100	HEATER DRN GUIDE AS	220V/ 45W	1	
96	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	1	
97	3012007800	FIXTURE MOTOR A	PP	1	
98	3015911300	MOTOR F FAN AS	DC12V 2.5W	1	
99	3018914400	LOUVER F C	PP	1	
100	7142401611	SCREW TAPPING	T2 TRS 4 x 16 MFZN	3	
101	3011802200	FAN	ABS (O.D.)3.17 x D110	1	
102	3018914900	LOUVER F D AS	PP	1	
103	3014805300	SENSOR F AS	PT-38	1	
104	3018914700	LOUVER F B AS	HIPS	1	
105	3018914610	LOUVER F A AS	HIPS	1	
106	7142401611	SCREW TAPPING	T2 TRS 4 x 16 MFZN	3	
107	3010924600	CAP F LUVR	HIPS	3	
108	3011473000	COVER SENS	ABS	1	
109	3014559510	PLATE LAMP F	SBHG T0.8	1	
110	3017905200	SOCKET F LAMP AS		2	

NO	PART CODE	PART NAME	PART DESCRIPTION	QUANTITY	REMARK
111	3013602000	LAMP F	AC240V 25W	2	
112	7121300811	SCREW TAPPING	T2S PAN 3X8 MFZN	4	
113	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	4	
114	3015507710	WINDOW F LAMP	MIPS	1	
115	3016002710	SPECIAL SCREW	4 x 12	2	
117	3017827100	SHELF F A AS	GLASS + HIPS	3	
118	3018124000	SWITCH LAMP	SP201R-7DR	1	
119	3015101300	SPRING ICING CASE	STS304WPB	2	
120	3011170600	CASE ICING	PP	2	
121	3012203800	FRAME ICE MAKER	ABS	1	
122	3013408000	KNOB ICEING CASE	HIPS	2	
123	3011171800	CASE ICE AS	GPPS + HIPS	1	
124	3011171400	CASE F A AS	GPPS + HIPS	1	
125	3011171500	CASE F B AS	GPPS + HIPS	1	
126	3012516000	GUIDE F POCKET	PP	2	
127	3019019100	POCKET F *U	HIPS	5	
128	3019019000	POCKET F *T	HIPS	1	
129	3000018700	ASSY F DR	FRS-2021	1	
129-1	3012314200	GASKET F DR AS	PVC	1	
129-2	3000003700	ASSY F DR URT		1	
132	3011623800	DECO HNDL *T	ABS	1	
133	3012628500	HANDLE	AL	1	
134	3011613900	DECO HNDL *U	ABS	1	
135	3016031700	SPECIAL SCREW		2	
136	3010326100	BASE DECO COVER *T	HIPS	1	
137	3010326200	BASE DECO COVER *U	HIPS	1	
138	7112401211	SCREW TAPPING	T1 TRS 4 x 12 MFZN	8	
139	3011472100	COVER HNDL DECO *T	ABS	1	
140	3011472200	COVER HNDL DECO *U	ABS	1	
141	3011747510	COVER F PCB AS	FRS-2021	1	
141-1	7111300811	SCREW TAPPING	T1 PAN 3 x 8 MFZN	7	
141-2	30143B4110	PCB F AS		1	
141-3	3016302600	BUTTON CONTL B	ABS	2	
141-4	3016303100	BUTTON CONTL A	ABS	4	
141-5	3015507800	WINDOW F PCB	ABS	1	
141-6	3011471600	COVER F PCB	ABS	1	
148	3019019400	POCKET DAIRY AS	GPPS + HIPS	1	
149	3019019300	POCKET R *S	GPPS	1	
150	3019019800	POCKET R *M	HIPS	2	
151	3011474600	COVER HOMEBAR AS	GPPS	1	
152	3012514100	GUIDE R POKT	HIPS	2	
153	3012513400	GUIDE BOTL	PP	2	
154	3019019200	POCKET R	HIPS	2	
155	3000025300	ASSY R DR	FRS-2041	1	
155-1	3012314500	GASKET R DR AS	PVC	1	
155-2	3012314400	GASKET HOMEBAR B AS	PVC	1	
155-3	3000003810	ASSY R DR URT		1	
159	3012314300	GASKET HOMEBAR A AS	PVC	1	
160	3011471700	COVER FRAME HOMEBAR	ABS	1	
161	3012918300	HINGE HOMEBAR *R AS	STS304	1	
162	3012918200	HINGE HOMEBAR *L AS	STS304	1	
163	3016030600	SPECIAL SCREW C	SUS M5	8	
164	3010951600	CAP HOMEBAR ARM PLT *R	ABS	1	
165	3012514000	GUIDE HOMEBAR ARM RING A	POM	1	
166	3016030800	SPECIAL SCREW A	SUS M5	2	
167	3016030600	SPECIAL SCREW C	SUS M5	2	

NO	PART CODE	PART NAME	PART DESCRIPTION	QUANTITY	REMARK
168	3015202100	STOPPER HOMEBAR DR	PP	2	
169	3016030900	SPECIAL SCREW B	SUS M5	2	
170	3014560300	PLATE HOMEBAR ARM *R AS	STS 304	1	
171	3011791900	DOOR HOMEBAR URT AS		1	
172	3010951500	CAP HOMEBAR ARM PLT *L	ABS	1	
173	3014560200	PLATE HOMEBAR ARM *L AS	STS 304	1	

DAEWOO

Side By Side Refrigerator

Failure Checkup & Troubleshooting

Daewoo Electronics Corp.

- CONTENTS -

1. Power Failure of Refrigerator
(Interior Lights Disconnection, F-PCB Power Off)

2. Adjusting F/R Door Balance And Gap

3. Freezer Compartment
- **3-1) Freezing Failure ; Foods does not get cold or frozen.**
- **3-2) Ice Formation on F-louver**
- **3-3) Disconnection of Wires of F-lights**

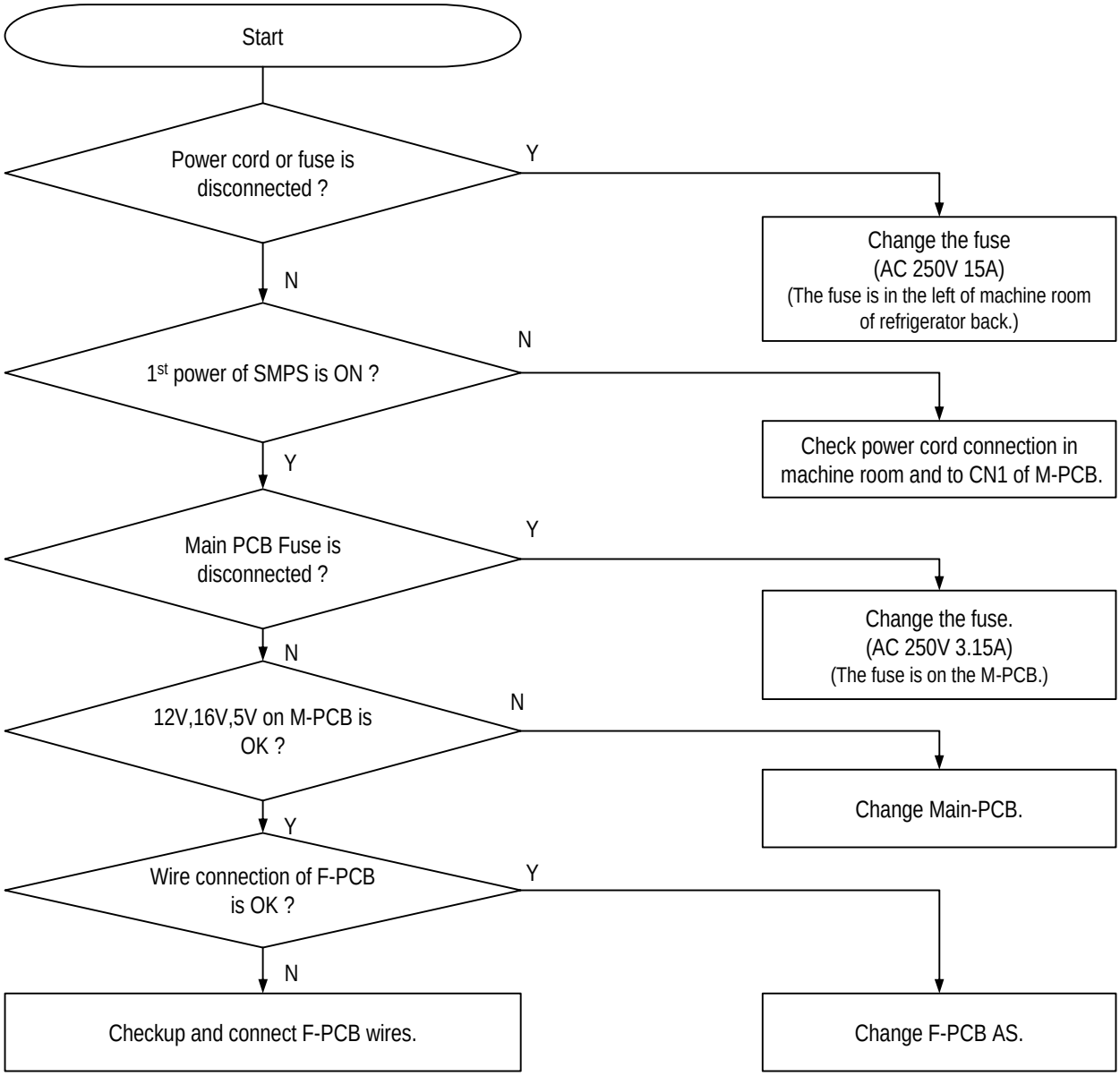
4. Refrigerator Compartment
- **4-1) Refrigeration failure ; Foods does not get cold soon or does not get cold at all.**
- **4-2) Disconnection of Wires of R-lights**
- **4-3) Dews in R-compartment**
- **4-4) Exceed Refrigeration of vegetable Case**

5. Noise
- **5-1) Compressor Noise**
- **5-2) Refrigerant Noise**
- **5-3) Fan Noise**
- **5-4) Pipe Touch / Shaking Noise**

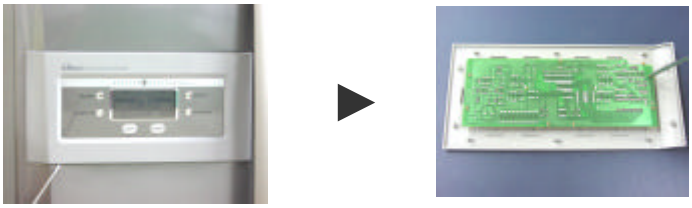
6. Door
- **6-1) Door Alarm Continues after Doors are Closed.**
- **6-2) F-PCB is ON continuously after Doors are Closed.**

Failure Checkup & Troubleshooting

1. Power failure of refrigerator (F/R lights OFF / F-PCB power OFF)


Start
Power cord or fuse is disconnected ?
Y
Change the fuse (AC 250V 15A) (The fuse is in the left of machine room of refrigerator back.)
N
1st power of SMPS is ON ?
N
Check power cord connection in machine room and to CN1 of M-PCB.
Y
Main PCB Fuse is disconnected ?
Y
Change the fuse. (AC 250V 3.15A) (The fuse is on the M-PCB.)
N
12V,16V,5V on M-PCB is OK ?
N
Change Main-PCB.
Y
Wire connection of F-PCB is OK ?
Y
N
Checkup and connect F-PCB wires.
Change F-PCB AS.

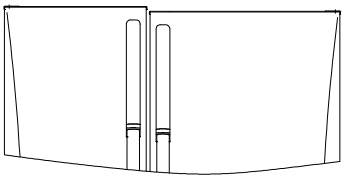
Note) Change of F-PCB

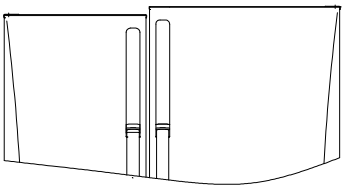


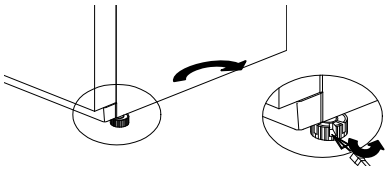
1) Insert a flat tip driver into the left down groove of panel frame and snap it out smoothly.
2) Remove housing from F-PCB and screws on the board to change for a new one.
   * Assembling is the reverse order of disassembling.

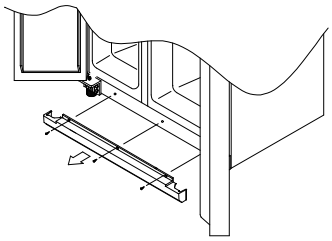
2. Adjusting F/R Door Balance and Gap

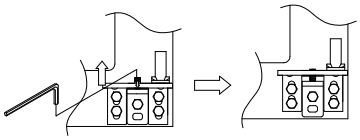
2-1) Top of F/R door is unbalanced horizontally.
(Refer to User Guide and SVC Manual for details.)

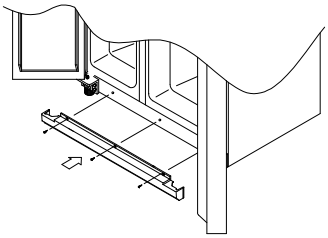












Start

Top of F/R is unbalanced within 2 mm ?

Y

N

Refrigerator is level ?

N

Turn the wheels to level refrigerator.

Y

Top of F/R is unbalanced within 2 mm ?

N

Y

Open F/R doors and remove front cover (fastened with 3 screws).

Close F/R doors and loosen 3 (left and right blots, not the middle one) hinge bolts.
(Do not remove the 3 the bolts.)

Insert hex wrench into the hinge hole and turn clockwise or counterclockwise to lift or down doors.

After adjusting door height, fasten the 3 hinge bolts back.

Top of F/R is unbalanced within 2 mm ?

N

Y

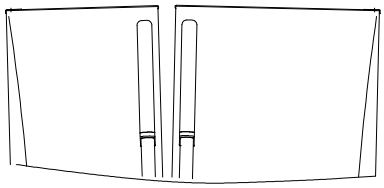
Open F/R doors again and replace front cover.

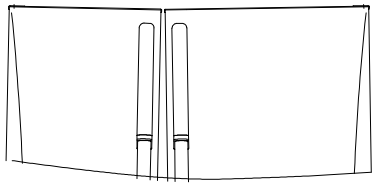
F/R door horizontal balance is OK.

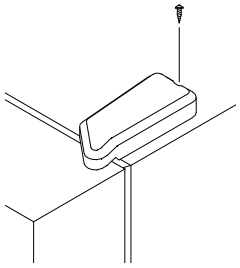
Finish

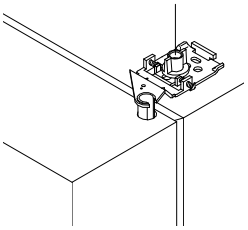
2. Adjusting F/R Door balance and Gap

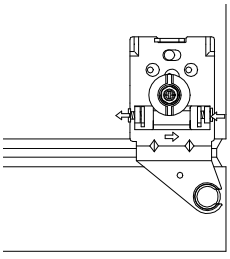
2-2) Top and bottom gap between F/R doors are different.
(Refer to User Guide and SVC Manual for details.)

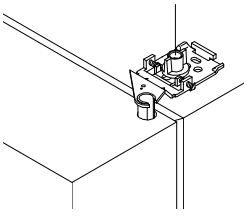


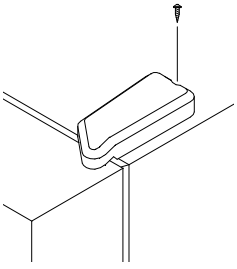












Start

Top and bottom gap between F/R doors are different ?

N

Y

Top left of F door or top right of R door is in or out 2.5mm from cabinet line ?

N

Y

Remove top hinge cover screw and hinge cover.

Make hinge fastener loose. (Do not remove it.)

* **When top of door is protruded from cabinet over 2.5mm ;**
Make hinge screws loosen and adjust door vertical balance.
-> Refer to user's Guide for detail.

* **When top of door is sunken from cabinet more than 2.5mm ;**
Make hinge screws loosen and adjust door vertical balance.
-> Refer to user's Guide for detail.

Top and bottom gap of both doors are the same ?

N

Y

Turn the hinge fastener clockwise tightly.

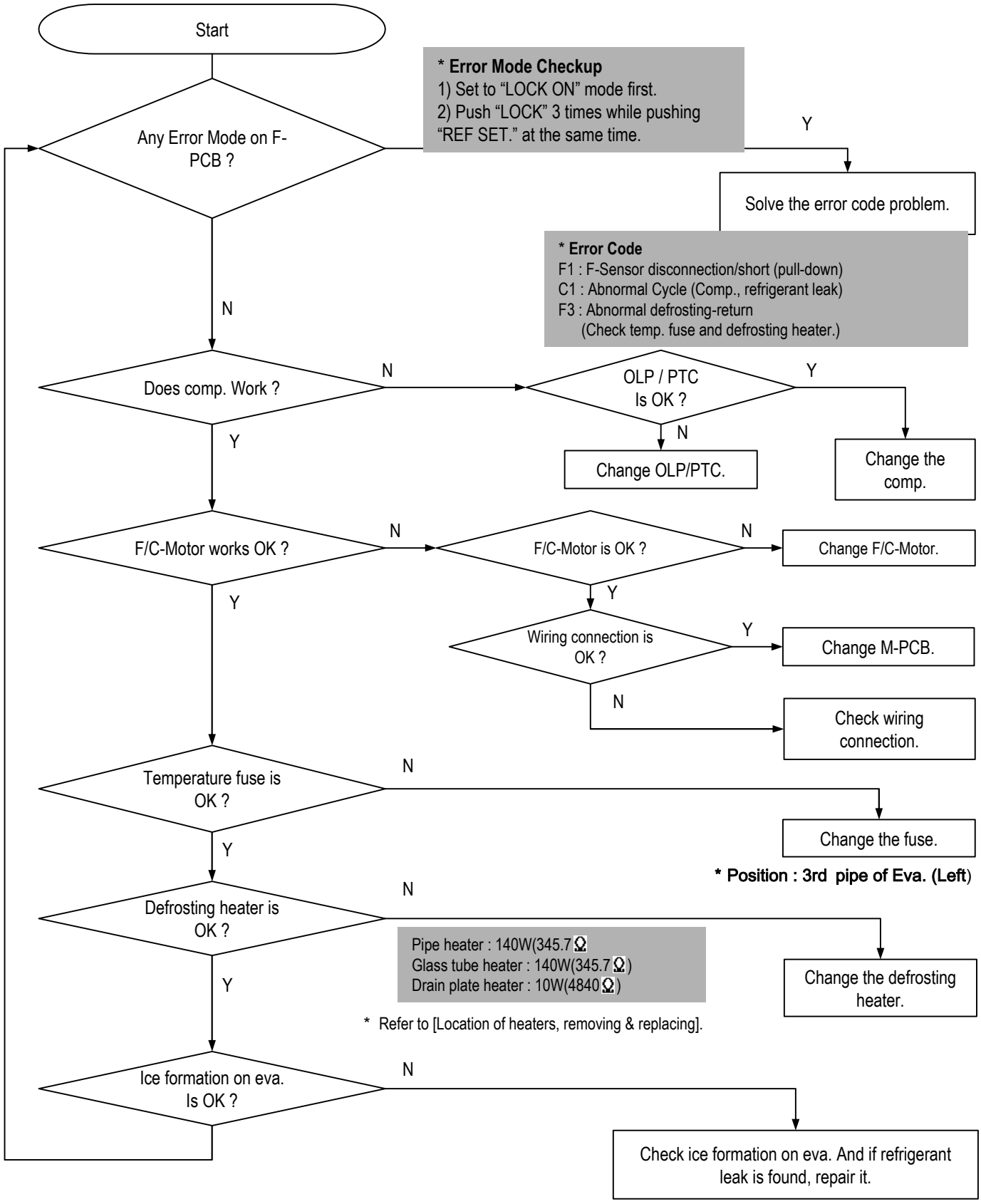
Replace top hinge covers and screw them.

Door gap is balanced.

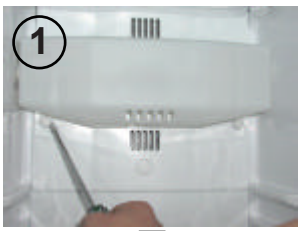
Finish

3. Freezer Compartment

3-1) Freezing / Refrigeration does not work. (Foods are not frozen / cold.)

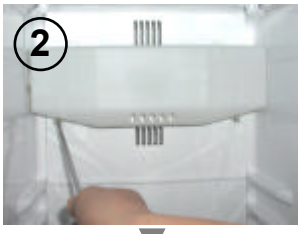


Failure Checkup & Troubleshooting



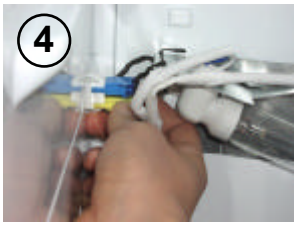
1) Remove foods and shelves in Freezer compartment.

2) Remove screw cap with a small tip driver on the bottom of light cover.

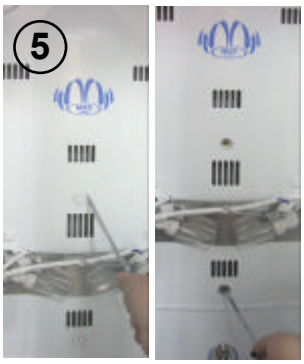


* Remove light cover screws.

* Pull down smoothly the bottom of light cover to remove.

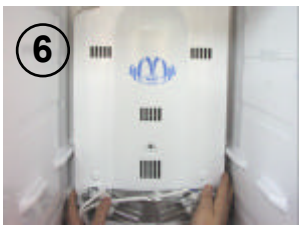


* Remove the left housing.

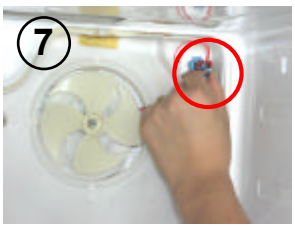


1) Remove 3 screw caps on the louver with a flat tip driver.

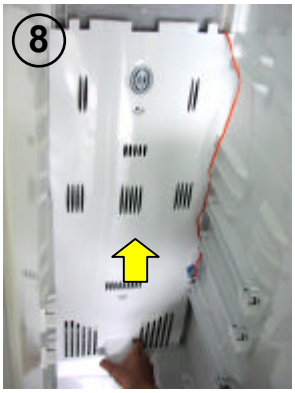
2) Remove 3 screws.



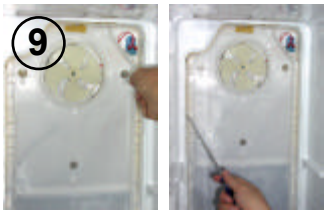
* Hold both ends and pull forward slowly.



* Remove the housing.

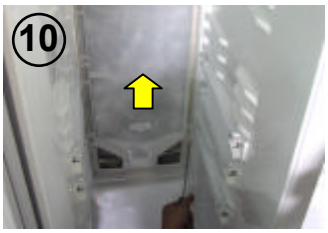


* Hold the bottom nose of cover and pull forward out to remove.



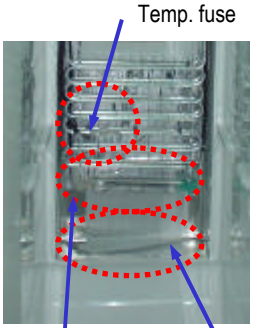
1) Remove 3 screws.

2) Push the hook points with a flat tip driver and pull upward out to remove.

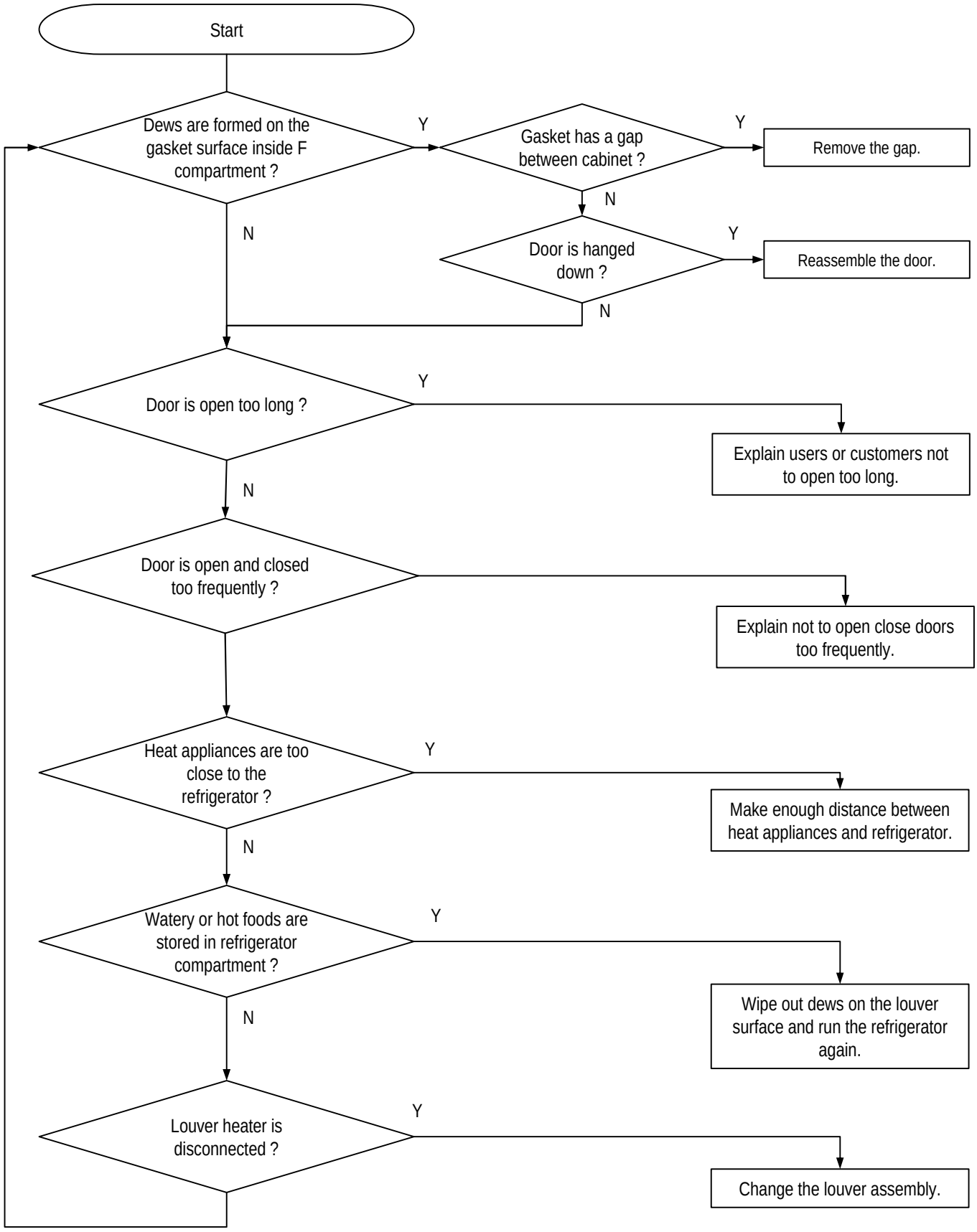


* Follow the reverse order when assembling back.

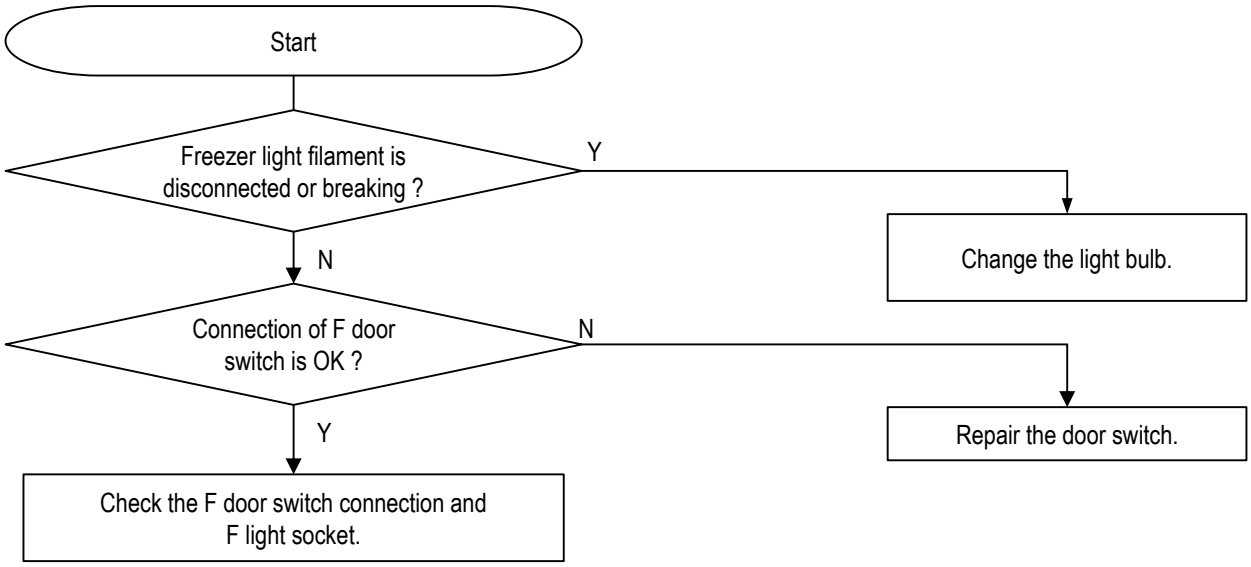
1st : Glass heater housing
2nd : Pipe heater housing
3rd : Drain plate heater housing

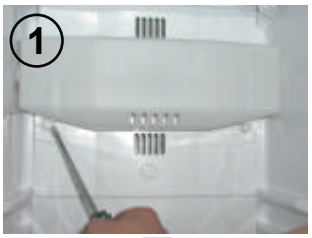


3-2) Ice Formation on F-Louver


Start
Dews are formed on the gasket surface inside F compartment ?
Y
Gasket has a gap between cabinet ?
Y
Remove the gap.
N
Door is hanged down ?
Y
Reassemble the door.
N
N
Door is open too long ?
Y
Explain users or customers not to open too long.
N
Door is open and closed too frequently ?
Explain not to open close doors too frequently.
Heat appliances are too close to the refrigerator ?
Y
Make enough distance between heat appliances and refrigerator.
N
Watery or hot foods are stored in refrigerator compartment ?
Y
Wipe out dews on the louver surface and run the refrigerator again.
N
Louver heater is disconnected ?
Y
Change the louver assembly.

3-3) Disconnection / breaking of Freezer Lights Wires

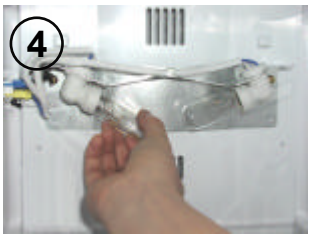




Remove screw caps bottom of light cover with a tiny tip screw driver.

Remove 2 screws of light cover.

Hold the bottom of light cover and pull forward to remove.



Change the light bulb. (AC240V 25W)

* Follow the reverse order of disassembling after changing the light.

Insert a flat tip screw driver

Into a gap of door switch

to pull forward.

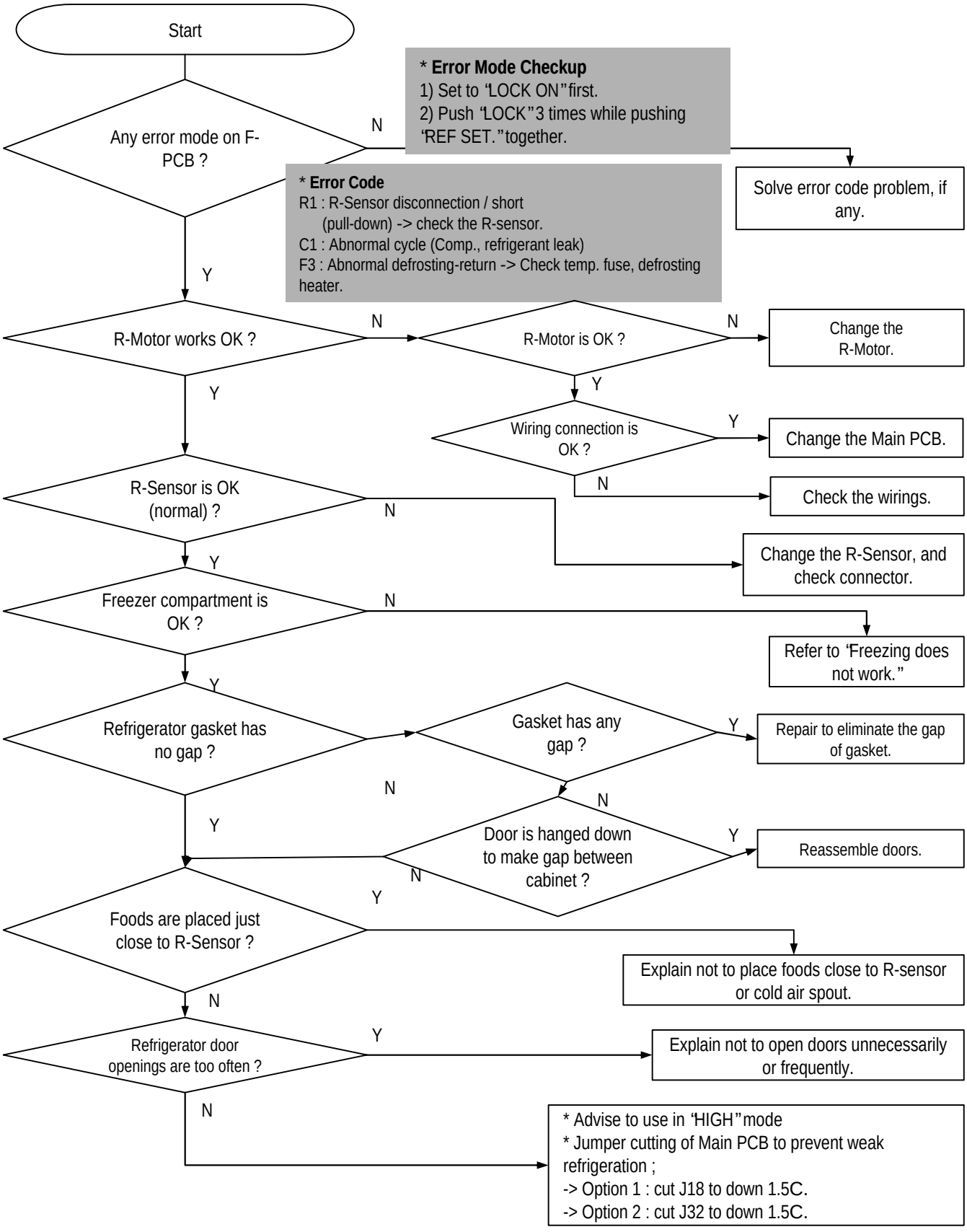
Disconnect the housing and change the switch for a new one.

* Be careful when changing the switch. F and R door switch are different in type and shape.

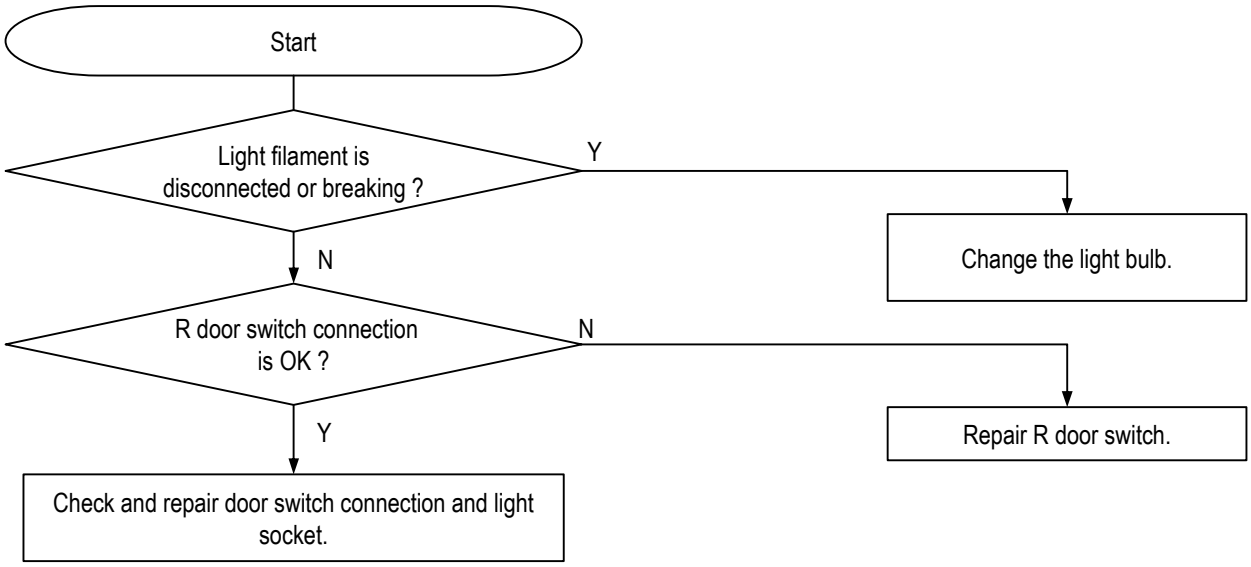
* Follow the reverse order of disassembling after changing the switch.

4. Refrigerator Compartment

4-1) Refrigeration is never done or weak/insufficient. -> **Foods does not get cool or cold soon.**


Start
Any error mode on F-PCB ?
N
* Error Mode Checkup
1) Set to 'LOCK ON" first.
2) Push 'LOCK" 3 times while pushing 'REF SET." together.
Solve error code problem, if any.
* Error Code
R1 : R-Sensor disconnection / short (pull-down) -> check the R-sensor.
C1 : Abnormal cycle (Comp., refrigerant leak)
F3 : Abnormal defrosting-return -> Check temp. fuse, defrosting heater.
Y
R-Motor works OK ?
N
R-Motor is OK ?
N
Change the R-Motor.
Y
Y
Wiring connection is OK ?
Y
Change the Main PCB.
N
Check the wirings.
R-Sensor is OK (normal) ?
N
Change the R-Sensor, and check connector.
Y
Freezer compartment is OK ?
N
Refer to 'Freezing does not work."
Y
Refrigerator gasket has no gap ?
Gasket has any gap ?
Y
Repair to eliminate the gap of gasket.
N
N
Y
Door is hanged down to make gap between cabinet ?
Y
Reassemble doors.
N
Y
Foods are placed just close to R-Sensor ?
Explain not to place foods close to R-sensor or cold air spout.
N
Refrigerator door openings are too often ?
Y
Explain not to open doors unnecessarily or frequently.
N
* Advise to use in 'HIGH" mode
* Jumper cutting of Main PCB to prevent weak refrigeration ;
-> Option 1 : cut J18 to down 1.5C.
-> Option 2 : cut J32 to down 1.5C.

4-2) Disconnection / breaking of Refrigerator Lights Wires



Refrigerator Top Lights

Remove screw caps bottom of light cover with a small tip screw driver.

Remove screws of light cover.

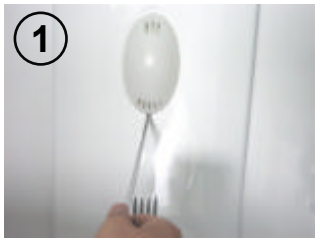
Hold the bottom of cover and pull forward to remove.

Change the light bulbs.

(AC240V 25W)

* Follow the reverse order of disassembling when assembling back.

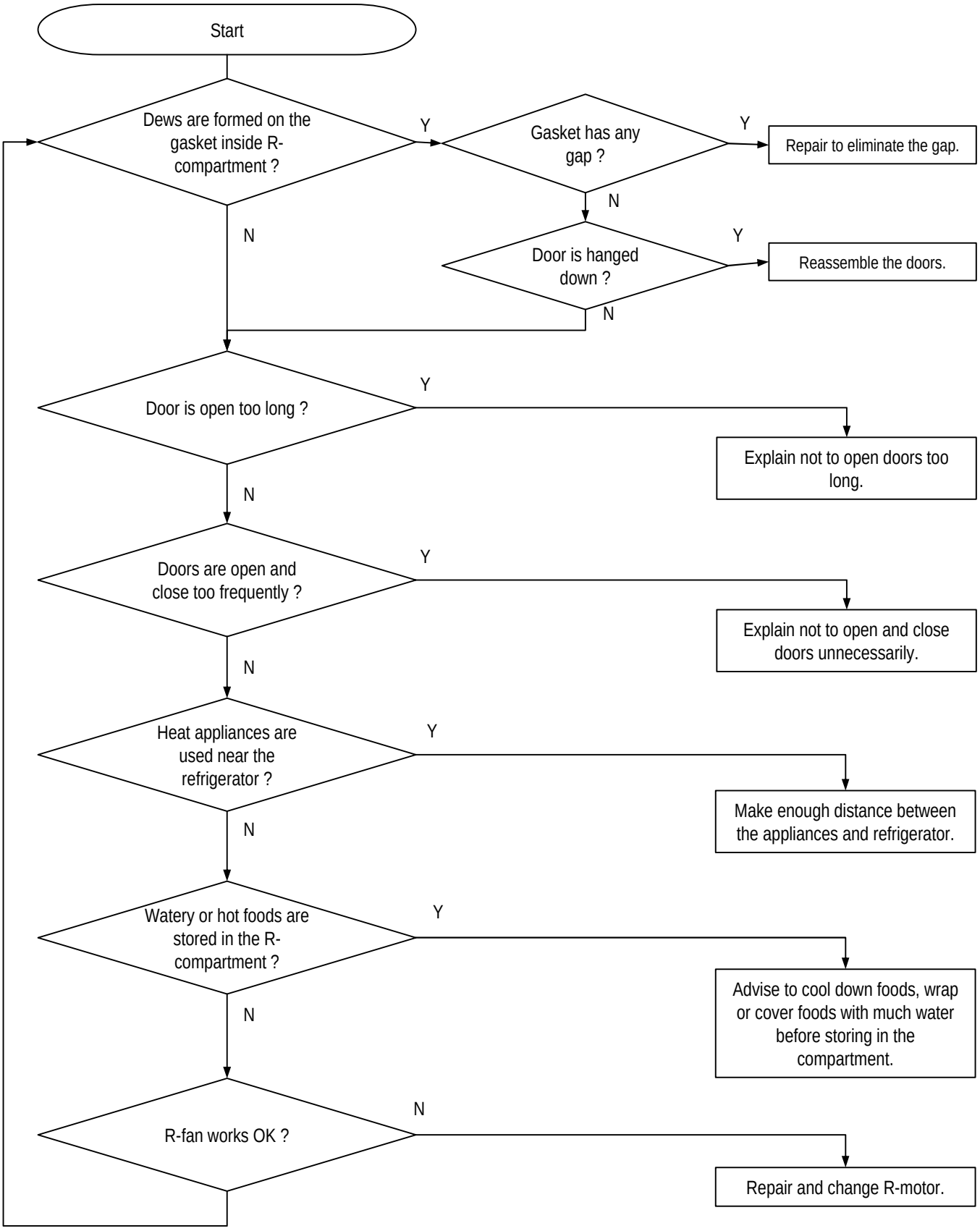
Refrigerator Bottom Light



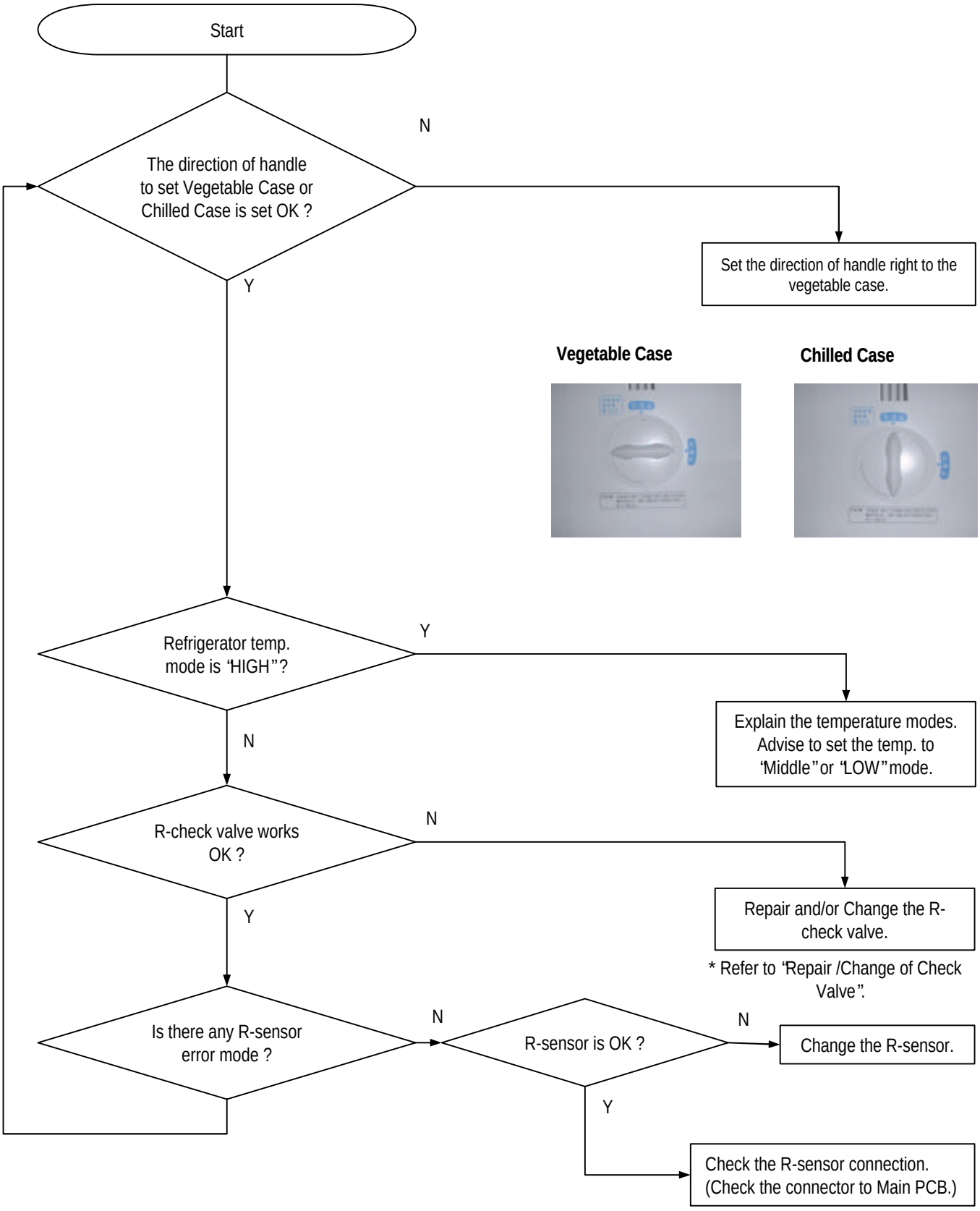
- Snap out the bottom hook of light cover with a flat tip screw driver.
- Hold down the light cover to pull out.
- Change the light bulb. (AC240V 15W)

* follow the reverse order after changing the light.

4-3) Dews on Refrigerator Compartment


Start
Dews are formed on the gasket inside R-compartment ?
Y
Gasket has any gap ?
Y
Repair to eliminate the gap.
N
N
Door is hanged down ?
Y
Reassemble the doors.
N
Door is open too long ?
Y
Explain not to open doors too long.
N
Doors are open and close too frequently ?
Y
Explain not to open and close doors unnecessarily.
N
Heat appliances are used near the refrigerator ?
Y
Make enough distance between the appliances and refrigerator.
N
Watery or hot foods are stored in the R-compartment ?
Y
Advise to cool down foods, wrap or cover foods with much water before storing in the compartment.
N
R-fan works OK ?
N
Repair and change R-motor.

4-4) Excessive Refrigeration of Vegetable Case


Start
The direction of handle to set Vegetable Case or Chilled Case is set OK ?
N
Y
Set the direction of handle right to the vegetable case.
Vegetable Case
Chilled Case
Refrigerator temp. mode is "HIGH"?
Y
N
Explain the temperature modes. Advise to set the temp. to "Middle" or "LOW" mode.
R-check valve works OK ?
N
Y
Repair and/or Change the R-check valve.
* Refer to "Repair /Change of Check Valve".
Is there any R-sensor error mode ?
N
R-sensor is OK ?
N
Change the R-sensor.
Y
Check the R-sensor connection. (Check the connector to Main PCB.)

Failure Checkup & Troubleshooting

* Remove foods and shelves of R-compartment.

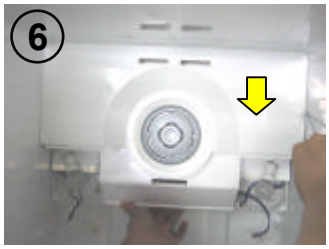
* Remove screws caps with a tiny tip screw driver.

Remove light cover screws with a (+)screw driver.

Hold the bottom of cover to pull down.

Disconnect light housing.

Remove screws with a (+) screw driver.

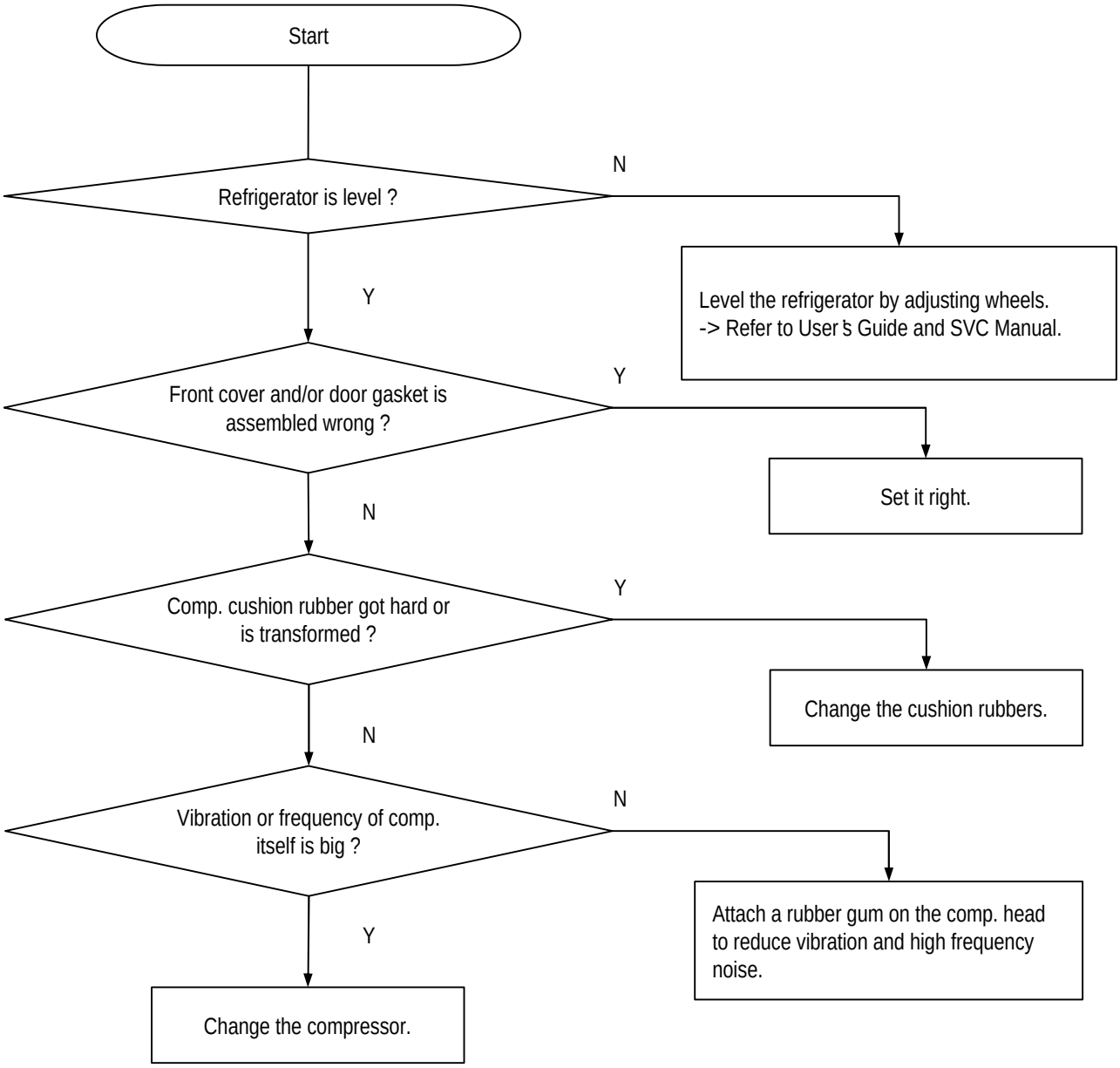


Hold the bottom and right of damper to pull down to remove.

Lift up a piece of Check Valve Flap and insert a finger to the valve frame to hold out.

5. Operation Noise of Refrigerator

5-1) Comp. operation Noise

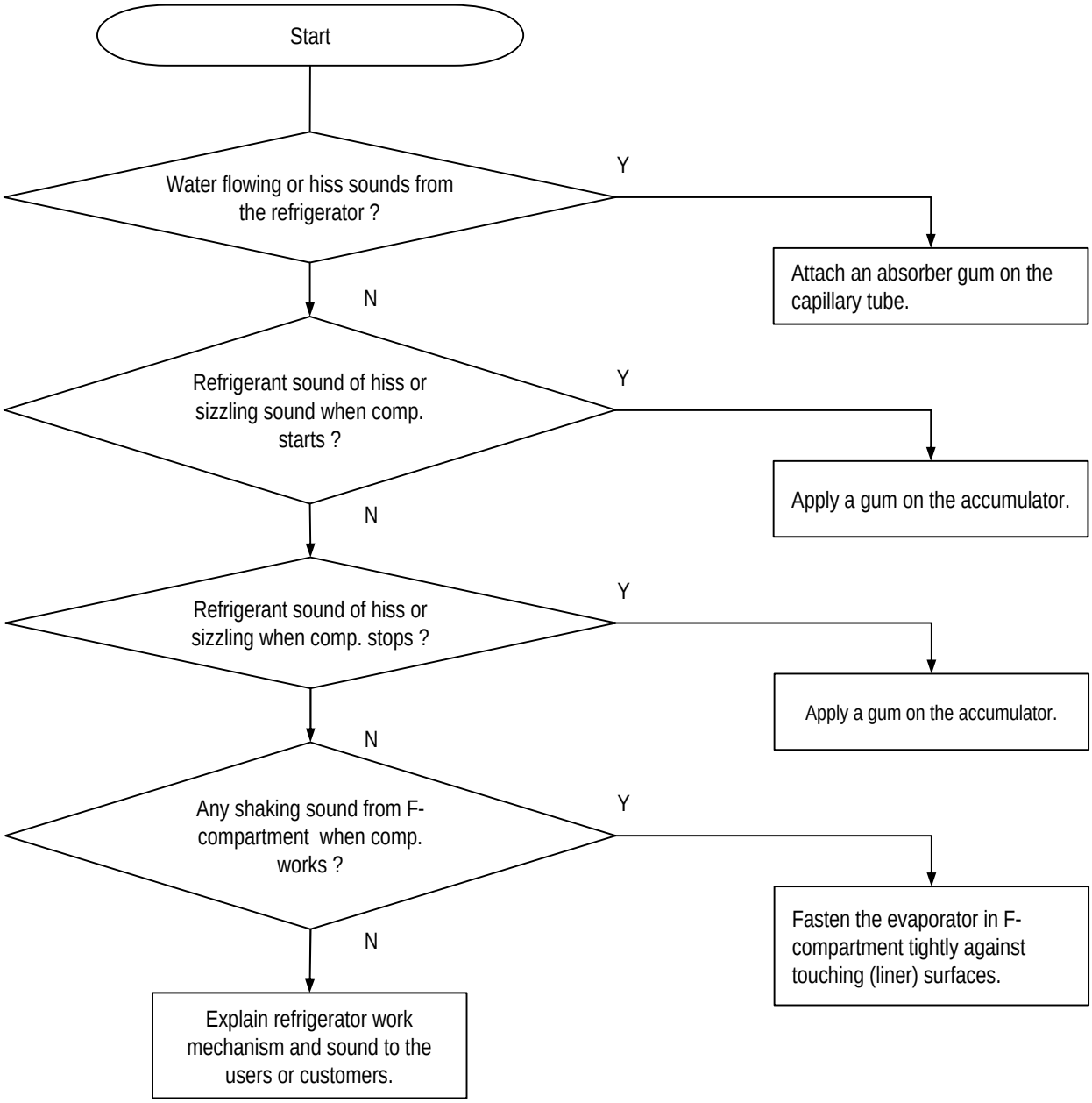

Start
Refrigerator is level ?
N
Level the refrigerator by adjusting wheels.
-> Refer to User's Guide and SVC Manual.
Y
Front cover and/or door gasket is assembled wrong ?
Y
Set it right.
N
Comp. cushion rubber got hard or is transformed ?
Y
Change the cushion rubbers.
N
Vibration or frequency of comp. itself is big ?
N
Attach a rubber gum on the comp. head to reduce vibration and high frequency noise.
Y
Change the compressor.

Remarks

! Compressor run sound is somewhat normal because it works like a heart to circulate the refrigerant in the pipes during the refrigerator operation.

! Rattling or metallic touch sound of motor, piston of comp. can be heard when it starts or stops.

5-2) Refrigerant Flow Sound

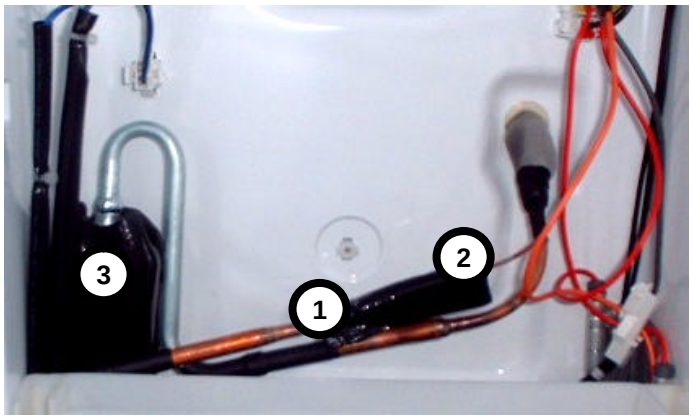

Start
Water flowing or hiss sounds from the refrigerator ?
Y
Attach an absorber gum on the capillary tube.
N
Refrigerant sound of hiss or sizzling sound when comp. starts ?
Y
Apply a gum on the accumulator.
N
Refrigerant sound of hiss or sizzling when comp. stops ?
Y
Apply a gum on the accumulator.
N
Any shaking sound from F-compartment when comp. works ?
Y
Fasten the evaporator in F-compartment tightly against touching (liner) surfaces.
N
Explain refrigerator work mechanism and sound to the users or customers.

Remarks

! Water flowing sound, hiss or sizzling sound can make while refrigerant in the pipes is changing from liquid to gas state when comp. starts or stops.
It is normal to the refrigerator.

Troubleshooting of Evaporator Sound

1. Hiss Sound from Capillary Tube



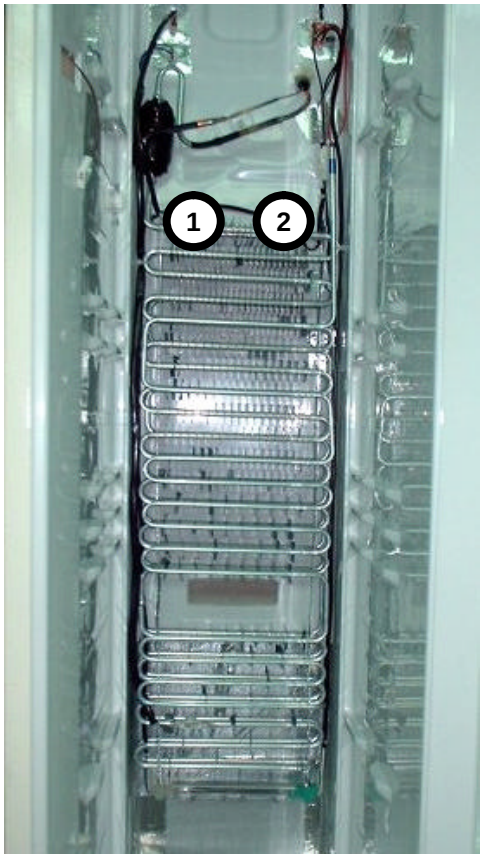
1) "I" tube is used to connect the capillary tube and evaporator.
(2 welding points : **1, 2**)

2) When such a sound is made, attach a gum on the tube including 2 welding points.

2. Sizzling Sound from Accumulator

Attach a gum on point 3 (accumulator).

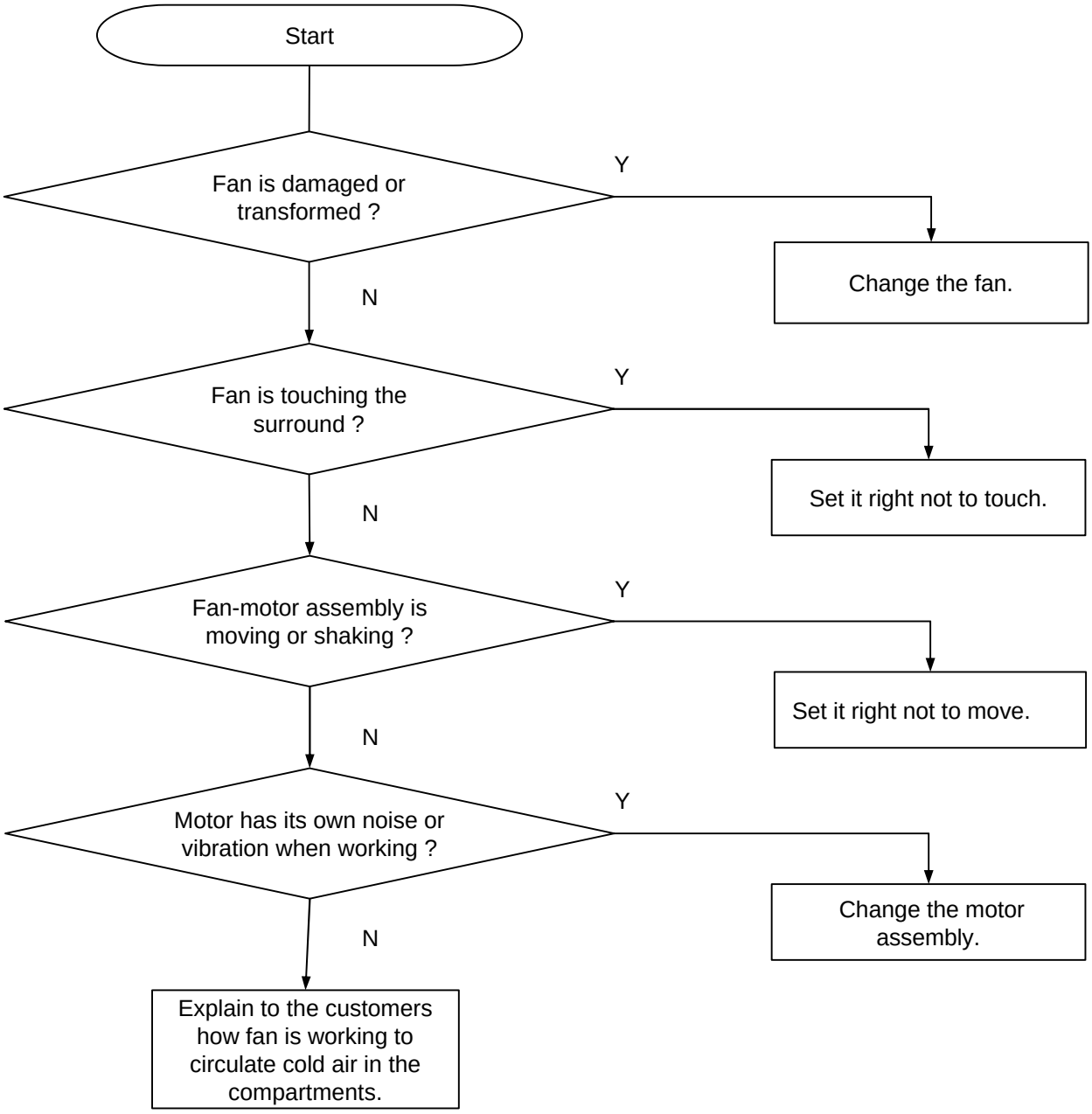
3. Shaking or trembling Sound of Evaporator



1) Check whether evaporator is fastened tight with the fasteners of 1, 2.

2) Insert a soft spacer (EPS) between left and right wall to evaporator not to be shaken or trembled during refrigerator operation.

5-3) Fan Noise

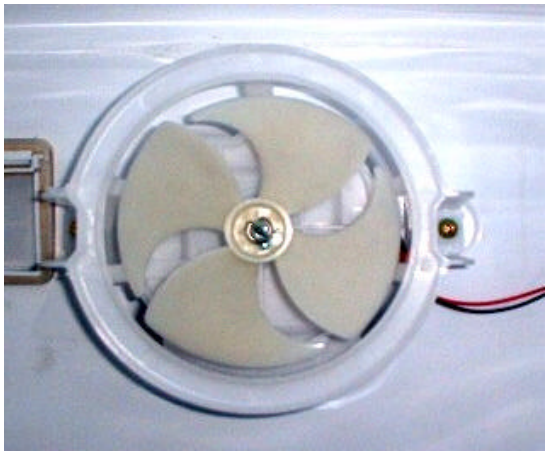

Start
Fan is damaged or transformed ?
Y
Change the fan.
N
Fan is touching the surround ?
Y
Set it right not to touch.
N
Fan-motor assembly is moving or shaking ?
Y
Set it right not to move.
N
Motor has its own noise or vibration when working ?
Y
Change the motor assembly.
N
Explain to the customers how fan is working to circulate cold air in the compartments.

Remarks

! The fan is sending out cold air to circulate it through the compartments.
When the air is touching the surface of louver or liner wall, such sound can make.

Troubleshooting of Fan Noise

1. Fixing or Fastening of Fan Motor



1) Check if fan motor frame of the assembly is fastened tightly with screws to the liner wall. Unless it is tight, vibration of shaking can make.

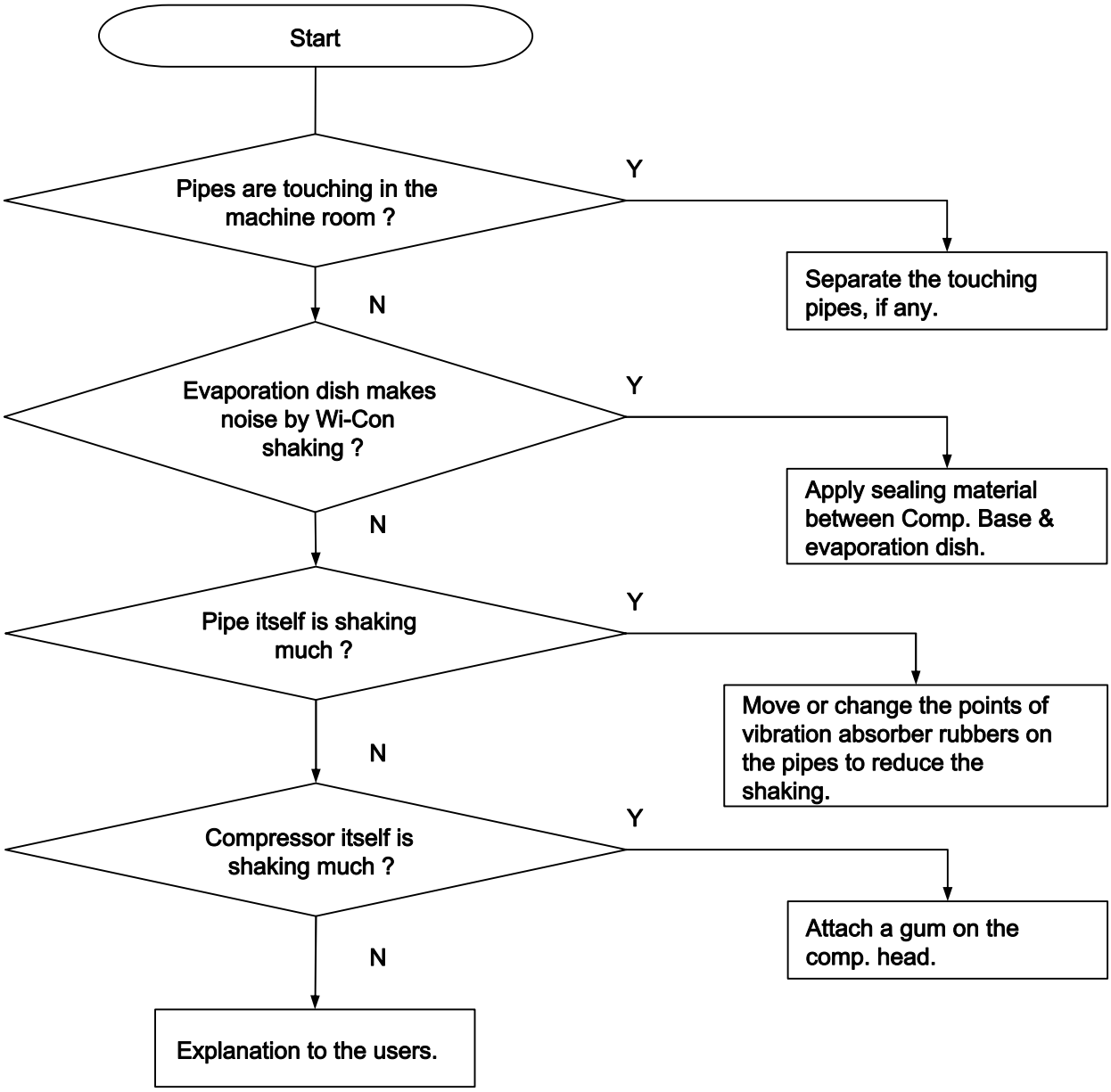
2) Check if fan motor and fan are hanged down.
Fan working sound can be louder if they are not set right.

2. Any Touch Sound from Fan

1) Check if sealing sponge on the insulator touches the fan.
If so, set it again not to touch it.

2) If any scratch or damage on the insulator around the fan rotation is found, set the fan motor assembly right not to touch it.

5-4) Pipe Noise

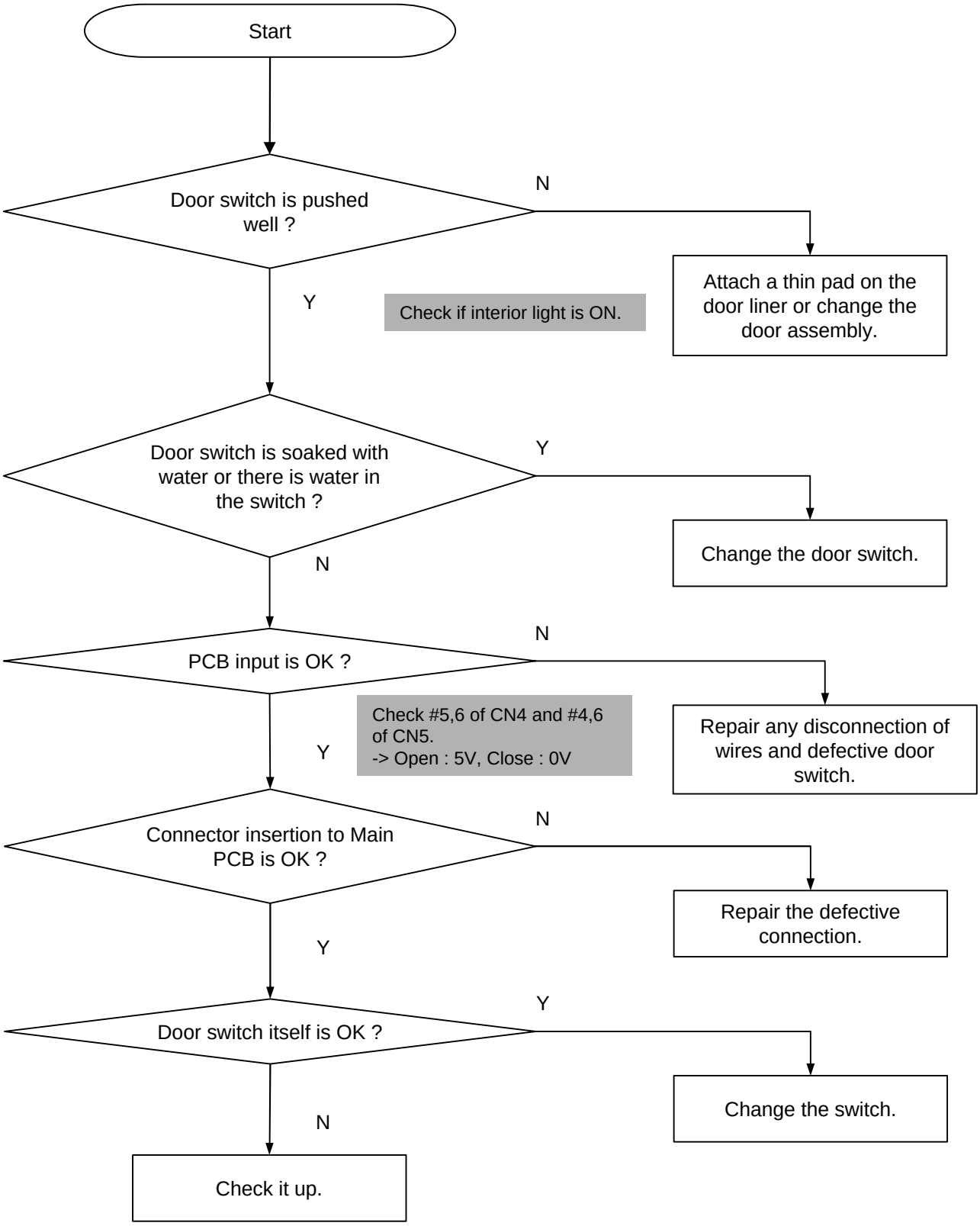

Start
Pipes are touching in the machine room ?
Y
Separate the touching pipes, if any.
N
Evaporation dish makes noise by Wi-Con shaking ?
Y
Apply sealing material between Comp. Base & evaporation dish.
N
Pipe itself is shaking much ?
Y
Move or change the points of vibration absorber rubbers on the pipes to reduce the shaking.
N
Compressor itself is shaking much ?
Y
Attach a gum on the comp. head.
N
Explanation to the users.

Remarks

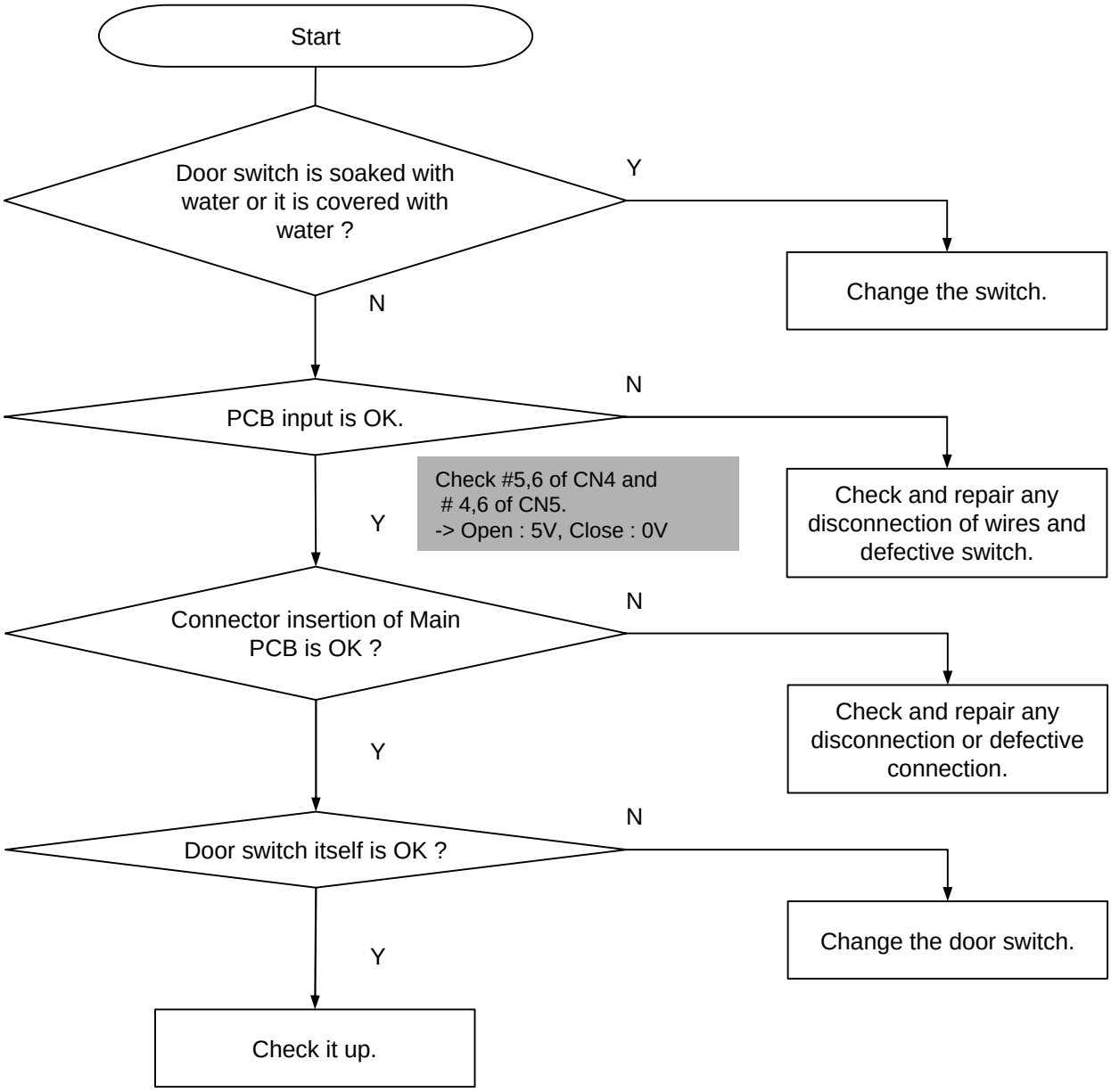
! Refrigerant is erupting rapidly from the compressor to circulate pipes, so pipe shaking noise can make to some degree.
! In case compressor vibration is sent to a pipe directly, apply vibration absorber rubbers to welding points of the pipe and comp. or to a much bent point on the pipe.

6. Doors

6-1) Door Opening Alarm Continues though the door is closed.


Start
Door switch is pushed well ?
N
Attach a thin pad on the door liner or change the door assembly.
Y
Check if interior light is ON.
Door switch is soaked with water or there is water in the switch ?
Y
Change the door switch.
N
PCB input is OK ?
N
Repair any disconnection of wires and defective door switch.
Y
Check #5,6 of CN4 and #4,6 of CN5.
-> Open : 5V, Close : 0V
Connector insertion to Main PCB is OK ?
N
Repair the defective connection.
Y
Door switch itself is OK ?
Y
Change the switch.
N
Check it up.

6-2) F-PCB continues ON though doors are closed.
(Background Light of F-PCB is ON continuously.)


Start
Door switch is soaked with water or it is covered with water ?
Y
Change the switch.
N
PCB input is OK.
N
Check #5,6 of CN4 and # 4,6 of CN5.
-> Open : 5V, Close : 0V
Y
Check and repair any disconnection of wires and defective switch.
Connector insertion of Main PCB is OK ?
N
Check and repair any disconnection or defective connection.
Y
Door switch itself is OK ?
N
Change the door switch.
Y
Check it up.